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# War Clinics

During 1919 we plan many instructive Clinics from those surgeons who are "over there"—who have been in actual contact with surgery in the field and at the Base Hospitals. They have much to tell of untold value in reconstruction and rehabilitation work, both military and industrial. This number contains six such Clinics, and much other matter of a thoroughly live character. Read the *February Contents.*

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**Dr. M. A. Bernstein,** *Wesley*
Talipes cavus.

**Dr. D. A. Orth,** *St. Mary's*
Strangulated femoral hernia.

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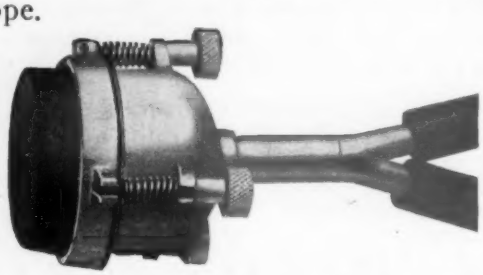

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## Original Articles.

## INFLUENZA EPIDEMIC AT CAMP MACARTHUR: ETIOLOGY, BACTERIOLOGY, PATHOLOGY, AND SPECIFIC THERAPY.*


BY LEON S. MEDALIA, M.D., BOSTON, MAJOR, M.C., U. S. ARMY.

*Chief of Laboratory Service, Base Hospital, Camp MacArthur.*


### ETIOLOGY.

THE weather conditions when the epidemic struck us were unsurpassed: no rain, not windy, fair, and warm. The climatic conditions therefore, do not seem to have had any influence over the spread of the infection. As to congestion, that too did not seem to have been a necessary element in the spread of the disease. The weather being as already stated, as good as one could wish for, the troops occupying tents certainly had plenty of open air, both during the day and at night; nor was there any congestion of the tents occupied. As to the relation of pre-existing "colds" or catarrhal conditions, that too in our epidemic, played a very small part.

The disease, judging from the epidemic as we saw it here, seems to be highly contagious and spreads rapidly from individual to individual (probably by means of sputum droplets in speaking, coughing, or sneezing) in spite of good weather, lack of congestion, and plenty of fresh air. Nor does age have much to do with it—practically all our cases were in young, robust adults.

### BACTERIOLOGY.

a. *Influenza.* An examination of the sputum of the very first cases that appeared in this camp demonstrated the abundance of B. influenzae in the sputum and the ease with which it could be found in direct smears. Sputum smears were made, dried, fixed, and stained by a weak solution of carbol fuchsin (carbol fuchsin 1, water 4 parts). The influenza bacilli were found in clumps varying in size. These clumps were very abundant in the vast majority of the cases that were positive. The clumps when stained by Gram's method of staining were found to consist of Gram-negative ovoid, very small bacilli agreeing in every respect with the classical description of the Pfeiffer bacillus, mixed with numerous Gram-positive cocci and diplococci.

The ease with which the influenza bacillus was demonstrated in the direct smears of the sputum made us hopeful in the beginning of being able to control the spread of the disease by isolating tent-mates of each case as it appeared; to have these contacts sent to the laboratory and


* This work was carried out with the assistance of Lieuts. E. M. Rheinheimer R. J. Haws, and David O. Spristersbach, and the laboratory technicians.

have their sputum examined, and if found positive, to isolate and treat them as carriers, while the negative contacts were to be released—in short, to handle them similarly to the handling of the diphtheria contacts.

This was carried out in 7 squads; from 5 to 8 men each, a total of 44 men, 38 of whom were found negative and 6 positive. It was soon realized, however, that the contagiousness and the spread of this infection is so rapid that the procedure became impracticable and had to be abandoned. The examination of the sputum, however, was made the basis of diagnosis of influenza in all cases that were sent to the Base Hospital as influenza "suspects."

Table I shows the result of sputum examinations of 2279 influenza "suspects" that came in to the Base Hospital. Cases with negative laboratory findings were discharged when that was found possible clinically. The practicability of sputum smears as an aid in diagnosis was amply demonstrated in this series of examinations.

TABLE I.

RESULTS OF SPUTUM EXAMINATIONS FOR B. INFLUENZAE IN CASES SENT IN TO THE BASE HOSPITAL AS INFLUENZA "SUSPECTS."

| DATE 1918. | TOTAL EXAMINED. | POSITIVE | | NEGATIVE | |
|---|---|---|---|---|---|
| | | No. | Pct. | No. | Pct. |
| Sept. 26 | 3 | 2 | 66.6% | 1 | 33.3% |
| Sept. 27 | 2 | 2 | 100.0% | | |
| Sept. 29 | 29 | 12 | 41.4% | 17 | 58.6% |
| Sept. 30 | 28 | 19 | 67.8% | 9 | 32.2% |
| Oct. 1 | 84 | 45 | 53.5% | 39 | 46.5% |
| Oct. 2 | 52 | 42 | 80.7% | 10 | 19.3% |
| Oct. 3 | 87 | 73 | 83.9% | 14 | 16.1% |
| Oct. 4 | 203 | 173 | 85.2% | 30 | 14.6% |
| Oct. 5 | 106 | 91 | 85.8% | 15 | 14.2% |
| Oct. 6 | 65 | 63 | 96.9% | 2 | 3.1% |
| Oct. 7 | 78 | 67 | 87.1% | 11 | 12.9% |
| Oct. 8 | 198 | 166 | 83.8% | 32 | 16.2% |
| Oct. 9 | 233 | 169 | 72.5% | 64 | 27.5% |
| Oct. 10 | 118 | 95 | 80.5% | 23 | 19.5% |
| Oct. 11 | 169 | 145 | 85.8% | 24 | 14.2% |
| Oct. 12 | 138 | 100 | 72.5% | 38 | 27.5% |
| Oct. 13 | 104 | 65 | 62.5% | 39 | 37.5% |
| Oct. 14 | 130 | 116 | 89.2% | 14 | 10.8% |
| Oct. 15 | 78 | 62 | 79.5% | 16 | 20.5% |
| Oct. 16 | 77 | 44 | 57.2% | 33 | 42.8% |
| Oct. 17 | 98 | 75 | 76.5% | 23 | 23.5% |
| Oct. 18 | 53 | 32 | 60.3% | 21 | 39.7% |
| Oct. 19 | 53 | 32 | 60.3% | 21 | 39.7% |
| Oct. 20 | 50 | 33 | 66.0% | 17 | 34.0% |
| Oct. 21 | 4 | 4 | 100.0% | | |
| Oct. 22 | 19 | 10 | 52.6% | 9 | 47.4% |
| Oct. 23 | 11 | 9 | 81.8% | 2 | 18.2% |
| Oct. 24 | 1 | 1 | 100.0% | | |
| Oct. 25 | 4 | 2 | 50.0% | 2 | 50.0% |
| Oct. 26 | 0 | 0 | | | |
| Oct. 27 | 0 | 0 | | | |
| Oct. 28 | 4 | 3 | 75.0% | 1 | 25.0% |
| Oct. 29 | 0 | 0 | | | |
| | 2279 | 1752 | 76.8% | 527 | 23.1% |

The sputums were also studied for the presence of associated organisms, more especially the pneumococci and streptococci, and for the presence of pus cells. Thus in 1613 sputums that were found positive to B. influenzae, 861 or 53.3%, showed the presence of the pneumococci; 148, or 9%, streptococci. Out of the 552 sputums negative to B. influenzae, 296, or 53.6%, showed the presence of pneumococci; 26, or 4.7%, streptococci. The large number of pneumococci in both the positive and negative influenza sputums suggest the ever presence of this organism generally, and explains the reason for our finding this organism in practically all the bronchopneumonia cases complicating the influenza. The low percentage of positive findings of the streptococcus, in both those that were positive to B. influenzae and those that were negative, explains our lack of finding this organism in the broncho-pneumonia cases. It also demonstrates the comparative freedom from this organism generally of the troops in this camp during this epidemic.

Cultures were obtained in a number of cases, that showed positive sputums early in the disease, from the posterior nares and tonsils. These were also found culturally positive to B. influenzae.

It would seem fair to conclude from the foregoing that the sputum and mucous membranes of the upper respiratory tract contained the B. influenzae in abundance. The sputum droplets in speaking, coughing, and sneezing were probably the largest, if not the only, means of conveyance of these organisms from individual to individual and the most important etiologic factor.

b. *Influenza Broncho-pneumonia.* By far the most important problem from a mortality standpoint we had to deal with was the accompanying broncho-pneumonia.

The type determination was done in 445 cases of this type of pneumonia with the following results: Type I, 1 case; type IIa, 15 cases; type II, 8 cases; type III, 5 cases; type IV, 378 cases; undetermined (bile insoluble) 38 cases. The other organisms, beside the pneumococcus, noted in direct smears in 405 sputums on which the type determination was done, were B. influenzae, 54%; streptococcus, 15%. The associated organisms found in the same sputums culturally were B. influenzae, 10.6%; streptococcus, 15.2%; staphylococcus and B. mucosus capsulatus, 20% each. The small percentage of positive findings of B. influenzae in the sputum culturally as compared to the direct smears is due in part to the hardships encountered in cultivating this organ-

ism in culture media used in routine for the type determination. The findings are characteristic of the bacteriology of the sputum in this disease. The very large percentage (86%) of type IV in these broncho-pneumonia cases well illustrates the difference between secondary pneumonias and primary, such as lobar.

*Blood cultures* were taken on 233 cases. The usual technique was followed. Both agar plates and broth cultures were obtained in each case. The plates were made with 2 to 3 c.c. of blood to the plate while 10 c.c. were used for the broth cultures. 31 of the 34 positive cultures were pneumococci, 20 of these type undetermined (being bile insoluble), and one of the 20 also showed B. influenzae, 7 showed type IV, and 4 type IIa. Five of the seven with type IV died. Four of the 20 pneumococcus type undetermined died. (That one that showed B. influenzae mixed with pneumococci died.) None of those that showed the staphylococcus died. The large number of pneumococci found to be bile insoluble in this series suggests that not all the pneumococci are bile soluble.*

The finding of the B. influenzae in the blood cultures during life is worth calling special attention to. In one case the B.influenzae was found in pure culture, while in another it was mixed with pneumococcus. In both these cases the broth cultures were the only ones in which the organisms were found—not in the plates. Table II gives the findings of the blood cultures in detail.

The mortality of the 198 negative cultures is 16%, while of the 34 positive it is 23%. In 12 of the positive cultures growth was present in broth only, none in the plates. The negative cultures were kept under observation for 5 days, and quite a number showed growth only after the 3rd or 4th days.

Since the blood cultures were taken at all stages of the disease, but always before convalescence had set in, the findings under these circumstances could therefore be considered characteristic of this disease even though the cultures were not repeated excepting in a few of the cases.

NECROPSY FINDINGS.

During this epidemic sixty-one consecutive autopsies were performed on influenza-pneumonia cases, beginning with the first case that died of this disease on October 3, 1918.

***Bacteriology.*** Cultures were taken at time of autopsy from the heart, spleen, both pleural cavities, both lungs, and from the brain in case of meningitis. Culture media used was Loeffler's blood serum, glucose agar and blood agar. Direct smears were also made from the pleural cavities and from both lungs. Table III gives in detail the bacteriological findings in direct smears of these necropsies; out of 58 cases examined of right and left lungs the B. influenzae was found in 79% of each. The pneumococcus was found in 97% and 93% respectively, while the streptococcus was found in 12% and 9% respectively.

Direct smears of the right and left pleurae in 50 cases were examined; B. influenzae was found in 62% and 56% respectively; the pneumococcus in 78% and 68% respectively; the streptococcus in 2% and 4% respectively. In two cases of meningitis complicating the broncho-pneumonia, B. influenzae was found in both cases, 100%. One was mixed with pneumococcus.

* A phenomenon was noted in connection with the bile solubility test which is worth recording. In two instances when the bacteria obtained in the broth were subcultured on solid media (Loeffler's blood serum) suspended in saline and then typed, it was found bile-soluble, while in the original broth culture it was found insoluble. The presence of the serum in the original blood-broth cultures probably interfered with the bile-solubility test.

TABLE II.

BLOOD CULTURES IN INFLUENZA-PNEUMONIA, AND INCIDENCE OF MORTALITY.

| | | | | | Negative 196 Cases. | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Dead. | | Living. | |
| | | | | | No. | Pct. | No. | Pct. |
| | | | | | 30 | 15.1% | 168 | 84.8% |
| | | No. of Colonies per cc. | | | Positive 34 Cases. | | | |
| | | | | | Dead. | | Living. | |
| Pneumo. Type. | No. cases. | Pct. | Min. | Max. | No. | Pct. | No. | Pct. |
| I | .. | .. | .. | .. | .. | .. | 4 | 11.7% |
| IIa | 4 | 12.9% | 32 | 34 | .. | .. | .. | .. |
| II | .. | .. | .. | .. | .. | .. | .. | .. |
| III | .. | .. | .. | .. | .. | .. | .. | .. |
| IV | 7 | 22.5% | 2 | 6,618 | 5 | 14.7% | 2 | 6.2% |
| Undetermined { bile insol. / I mixed with B. Influ. } | 20 | 64.6% | 6 | 1,000 | 4 | 11.7% | 16 | 47.0% |
| B. Influenza | 1 | 2.9% | in broth only | | .. | .. | 1 | 2.9% |
| Staph. | 2 | 5.8% | 274 | 960 | .. | .. | 2 | 5.8% |

TABLE III.

BACTERIOLOGICAL FINDINGS AT NECROPSY—DIRECT SMEARS.

| | Total No. Cases. | B. Influ. | | Pneumo-cocci | | Strepto-cocci. | | Staphylo-cocci | | Mic. Cat. | | Unidentified. Gm. Pos. B. | | Gm. Neg. B. | | No. Organisms, | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. |
| Spleen ..... | 2 | 1 | 50% | | | | | | | | | | | | | 1 | 50% |
| Right Lung.. | 58 | 46 | 79% | 56 | 97% | 7 | 12% | 4 | 7% | 1 | 2% | 6 | 10% | 3 | 5% | 2 | 4% |
| Left Lung.... | 58 | 46 | 79% | 54 | 93% | 5 | 9% | 7 | 12% | 1 | 2% | 5 | 9% | 1 | 2% | 2 | 4% |
| Right Pleura. | 50 | 31 | 62% | 39 | 78% | 1 | 2% | 4 | 8% | | | 2 | 4% | | | 6 | 12% |
| Left Pleura.. | 50 | 28 | 56% | 34 | 68% | 2 | 4% | 3 | 6% | | | 3 | 6% | 2 | 4% | 8 | 16% |

Table IV gives the result of cultural findings in 65 influenza-pneumonia necropsies (61 consecutive and 4 additional)—3 of which were complicated with meningitis. Thus out of the 65 autopsies in which the right and left lungs were cultured, 83% each showed the B. influenzae. The pneumococcus was found in 78% and 85% respectively. The hemolytic streptococcus in 6% and 5% respectively.

Of 62 cases in whom the right and left pleurae were cultured, the B. influenzae was found in 81% and 76% respectively. The pneumococcus in 77% and 74% respectively, while the homolytic streptococcus was found in 5% each.

The high percentage (56%) of positive findings of the B. influenzae in the heart cultures, the spleen (56%), and brain (66%), as well as in the lungs and pleural cavities, is well worth calling attention to, in view of the controversies existing concerning the presence of the Pfeiffer bacillus in this pandemic. The low percentage of the streptococcus hemolyticus in these broncho-pneumonias as compared to the broncho-pneumonia of last year following measles, which were practically all due to the hemolytic streptococcus, is another point worth calling attention to.

The pneumococcus which was found in 57 of the 61 necropsies conformed to the following types: Type I, 3.5%; type IIa, 10.5%; type II, 5.5%; type IV, 63.2%; undetermined, 19.3%. The B. influenzae and the pneumococcus both in direct smears and in cultures were in some cases difficult to find, and required considerable search; both poor preparations and scanty growth were responsible for that. The Loeffler's blood serum with its abundant water of condensation was found to be the best culture medium for the B. influenzae and the pneumococcus. The carrying along of body exudates onto the surface of the culture media is probably responsible to a great extent for the results obtained on this ordinary culture medium, since this same culture medium proved unsatisfactory for subcultures.

Tissues for histological specimens were obtained from all the autopsies. Paraffin sections were made from the lungs and spleen, stained by 1 to 20 carbol fuchsin for B. influenzae and by Gram-Weigert stain for the pneumococcus and associated Gram-positive organisms.

Sections from the lungs stained by Gram-Weigert and carbol fuchsin were examined in 64 cases (61 consecutive necropsies and 3 additional); 88% were found positive to B.influenzae and 68% positive to the pneumococcus. Sections from spleen were examined in 45 cases; 69% were found positive to B. influenzae and 42% positive to pneumococcus. The streptococcus was found only in 3 cases out of the 64—all in the lungs, none in the spleen. The staphylococcus in 8% of the lung cases. None in the spleen.

It must be stated that in a number of the cases it required considerable search to find the organisms in the tissue, especially was it true in the B. influenzae.

Thus the tissues as well as the cultures of the necropsy cases showed the presence of the B. influenzae and the pneumococcus as the predominating organism responsible for the disease.

TABLE IV.

BACTERIOLOGICAL FINDINGS AT NECROPSY—CULTURES.

| | | B. Influenza | | Pneumo-cocci | | Strep. Hemol. | | Strep. Virid. | | Diphtheroids | | Staph. Albus | | Staph. Aureus | | Micro. Cat. | | Gm. Pos. & Gm. Neg. B. | | No. Growth | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. |
| Brain ..... | 3 | 2 | 66% | 2 | 66% | 1 | 33% | | | 1 | 33% | 1 | 33% | 1 | 33% | | | 3 | 100% | | |
| Heart ..... | 34 | 19 | 56% | 15 | 44% | 1 | 3% | 1 | 3% | 2 | 6% | 1 | 3% | | | | | 11 | 32% | 5 | 15% |
| Spleen ..... | 36 | 19 | 53% | 12 | 33% | 1 | 3% | | | 1 | 3% | 1 | 3% | 2 | 5% | | | 9 | 25% | 6 | 17% |
| Right Lung. | 65 | 54 | 83% | 54 | 78% | 4 | 6% | 3 | 5% | 7 | 8% | 7 | 11% | 8 | 12% | 1 | 2% | 23 | 35% | 2 | 3% |
| Left Lung.. | 65 | 54 | 83% | 55 | 85% | 3 | 5% | 3 | 5% | 5 | 8% | 7 | 11% | 12 | 19% | 2 | 3% | 20 | 31% | 1 | 1.5% |
| Right Pleura | 62 | 50 | 81% | 48 | 77% | 3 | 5% | 4 | 6% | 3 | 5% | 11 | 18% | 9 | 15% | | | 16 | 26% | 1 | 1.6% |
| Left Pleura. | 62 | 47 | 76% | 46 | 74% | 3 | 5% | | | 4 | 6% | 7 | 10% | 5 | 8% | | | 18 | 29% | 3 | 5% |

PATHOLOGICAL ANATOMY.

The majority of the 61 consecutive cases of influenza-pneumonia that came to necropsy were in the hospital from 3 to 7 days only, the disease lasting longer than seven days was the exception rather than the rule.

The type of pneumonias found in the 61 consecutive necropsies were: 56 or 92%, broncho-pneumonia, and only 5 cases, or 8%, were lobar, 4 bilateral and 1 unilateral. In over 75% of the cases, empyema or a bloody-sero-fibrino-purulent pleurisy was present—52% bilateral and 24% unilateral (Rt. 13%—Lt. 11%), 24% had no fluid.

The lung tissue in the majority of the cases was extensively involved, ballooned out, but not friable, having a dense tissue feel, as if filled with fluid exudate to its maximum capacity rather than with fibrin or cellular elements. The surface of the consolidated areas was of a dark red to a dark bluish red, and in the majority of the cases covered with a thin fibrinous exudate. In no case did it show the mat-like appearance of the post-measles broncho-pneumonia cases that we had last winter. The picture was that of a markedly congested organ. The consolidation was only rarely nodular or shot-like in feel, excepting in those of the lobes which showed beginning of the process; even here the unaffected parts would be crepitant or edematous, as the case may be, with a confluent patch posteriorly or centrally located.

There was only one case where the lungs presented the appearance of miliary tuberculosis; and another where the lungs were pinkish gray in color with shot-like nodules throughout and immediately under the pleural surface, giving the latter a granular appearance.

The outstanding feature of the pathological anatomy was the marked congestion. On cut section, dark fluid blood would escape from the consolidated areas as if under pressure. The surface of the cut section presented dark reddish gray areas with hemorrhagic or congested areas intervening. Distinct lobular consolidations could not be made out. In a few cases pin-point grayish purulent droplets would escape on pressure, but those were the exception. The case that did show shot-like feel presented on section a granular surface—grayish red raised areas, with lung tissues depressed and fairly dry in appearance. The lack of purulent exudate was the outstanding feature which suggested a study of the leucocytosis in this condition to be referred to later.

The mucous lining of the bronchi and tracheae was bright red and inflamed but not markedly swollen. In a number of cases dark fluid blood, at times frothy, would escape from the nostrils and mouth on slight pressure of thorax while handling the body.

*Histologically.* The early cases, those showing nodular consolidations, presented a characteristic picture of terminal bronchiolitis, conforming in all respects to the text-book description of the same. Fibrin formation was found to be the exception. In the majority of the cases that showed the confluent type of involvement, vast areas of alveoli could be seen filled with a granular appearing coagulable substance, containing loose cellular elements of red and white cells—the so-called catarrhal pneumonia was the rule. Large hemorrhagic areas of alveoli filled with red cells were seen in the lung tissues of a number of cases. Areas suggesting infarcts were also encountered. The case that showed an abundance of leucocytic exudation was the exception rather than the rule.

The other organs in the 61 consecutive necropsies showed little pathologic changes. Not a single case of pericarditis or endocarditis was met with. The liver, as a rule, was congested and occasionally a case would show typical nutmeg liver, probably due to other causes rather than the broncho-pneumonia. The kidneys showed congestion and only in a rare instance was there parenchymatous changes. The spleen, too, did not show more than congestion, and fluid blood would escape on section. The same was true of the stomach and intestines—very little change, if any.

It is evident from the necropsy findings of these 61 consecutive cases that the disease, as it appeared in this camp, was primarily an upper respiratory infection, due to the B.influenzae and pneumococcus. The rapidity with which death occurred was probably responsible for the lack of pathologic changes in any of the other organs. This contention is well borne out by later necropsies on cases that were sick from 4 to 7 weeks in which complications such as otitis media and meningitis occurred; pericarditis and thick purulent empyemas were also found. In these cases the other organs too showed parenchymatous changes concomitant with the duration of the disease.

*Leucocyte and Differential Count.* In order

TABLE V.

LEUCOCYTE COUNT IN INFLUENZA-PNEUMONIA.

| | 0-5,000 | | 5-10,000 | | 10-15,000 | | 15-20,000 | | 20-25,000 | | 25-30,000 | | 30-35,000 | | 72,000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. |
| No serum 86 cases..... | 10 | 13% | 32 | 37% | 20 | 23% | 13 | 15% | 6 | 7% | 4 | 4% | 1 | 1% | 0 | 0% |
| Serum given 138 cases... | 7 | 5% | 51 | 36% | 48 | 35% | 15 | 11% | 9 | 7% | 2 | 1% | 5 | 4% | 1 | 1% |

TABLE VI.

INFLUENZA-PNEUMONIA.

*Neutrophiles—Per Cent.*

(No. Serum 86).

| % | 40-45 | | 45-50 | | 50-55 | | 55-60 | | 60-65 | | 65-70 | | 70-75 | | 75-80 | | 80-85 | | 85-90 | | 90-95 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. |
| No serum.. | 0 | 0 | 5 | 6% | 3 | 3% | 9 | 10% | 13 | 15% | 16 | 18% | 9 | 10% | 12 | 13% | 7 | 8% | 10 | 11% | 2 | 2% |
| Serum given | 2 | 1% | 6 | 4% | 2 | 1% | 11 | 8% | 20 | 14% | 26 | 19% | 26 | 19% | 26 | 19% | 10 | 7% | 5 | 3% | 2 | 1% |

*Small Mononuclears.*

| % | 1-5 | | 5-10 | | 10-15 | | 15-20 | | 20-25 | | 25-30 | | 30-35 | | 35-40 | | 40-45 | | 45-50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Pct | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. |
| No serum.. | 4 | 4% | 10 | 11% | 6 | 6% | 21 | 24% | 17 | 19% | 10 | 11% | 11 | 12% | 3 | 3% | 3 | 3% | 1 | 1% |
| Serum given | 7 | 5% | 10 | 7% | 27 | 19% | 39 | 28% | 25 | 18% | 16 | 11% | 10 | 7% | 0 | 0 | 2 | 1% | 0 | 0 |

*Large Mononuclears.*

| % | 0 | | 1-5 | | 5-10 | | 10-15 | | 15-20 | | 20-25 | | 25-30 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Pct | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct. | No. | Pct |
| No serum.. | 5 | 5% | 52 | 60% | 22 | 25% | 2 | 2% | 3 | 3% | 2 | 2% | 0 | 0 | 0 | 0 |
| Serum given | 2 | 1% | 61 | 44% | 42 | 30% | 24 | 17% | 6 | 4% | 0 | 0 | 1 | .7% | 0 | 0 |

*Transitionals.*

| % | .0 | | 1-5 | | 5-10 | |
|---|---|---|---|---|---|---|
| | No. | Pct. | No. | Pct. | No. | Pct. |
| No serum... | 27 | 31% | 55 | 63% | 4 | 4% |
| Serum given | 32 | 23% | 90 | 71% | 14 | 10% |

*Eosinophiles.*

| % | 0 | | 1-5 | | 5-10 | |
|---|---|---|---|---|---|---|
| | No. | Pct. | No. | Pct. | No. | Pct. |
| No serum ...61 | 70% | 25 | 29% | 0 | 0 | |
| Serum given 95 | 69% | 40 | 29% | 1 | .7% | |

to account for the lack of purulent changes in the pathologic picture of the lungs in these broncho-pneumonia cases, a study was made on 224 cases with reference to the leucocyte and differential counts. Table V shows the leucocyte count under two separate headings—those receiving the polyvalent antipneumococcus serum and those not receiving the serum. The fact that from 72% to 75% of the cases showed a leucocyte count below 15,000 fairly well explains the pathologic picture. The differential counts as found on Table VI show that 71% of the cases receiving serum had a neutrophile count between 60% and 80%, while in those not receiving serum only 56% had a neutrophile count between 60% and 80%. The differential count shows nothing unusual otherwise.

SPECIFIC THERAPY.

The following well illustrates the direct value of post mortem examinations. The first few cases that came to necropsy showed bacteriologically that we were dealing with a predominating type IV pneumococcus infection associated with the influenza. It was therefore suggested by the writer to the Chief of the Medical Service to make use of the polyvalent antipneumococcus serum as a routine treatment in these pneumonias. This was followed out on a small scale until on October 15, during the height of the epidemic, the laboratory was assigned by the Commanding Officer to do anaphylactic tests, desensitization, and administration of the serum in the pneumonia cases. The idea of Lt.-Col. French, the C.O., was to arrange for a systematic administration of the serum. Accordingly, we immediately organized 3 crews of 5 men each, consisting of 4 enlisted men and one medical officer to the crew.*

Atropin dissolved in sterile saline, and bottled, so that each c.c. would represent gr. 1/150, and adrenalin 1 to 1000 was ready at hand to administer in case any reaction followed the intravenous dose. All the solutions were prepared

* Enlisted men from the laboratory, familiar with the Schick test, were chosen to do the intradermal and subcutaneous inoculations, while the medical men attended to the intravenous inoculations and the serum reactions—one man giving ½ c.c. of 1% serum in saline intradermally, followed by another injection of ½ c.c. saline as a control; the second man, 10 to 15 minutes later, followed the first with 1 c.c. of straight serum subcutaneously; and one-half hour later the intravenous inoculations of 50 c.c. were begun, if no reaction followed the intradermal and subcutaneous tests; the Medical Officer would start the intravenous inoculation and turn it over to the third man of the crew, who would *slowly* introduce the serum. The fourth enlisted man was the scribe. He entered in the book the name, rank and organization of the patient and the time of each inoculation, and whether or no reaction followed. The Medical Officers in charge of these crews were Lieut. Albert Nash, Lieut. William W. Reed, Lieut. Nathan S. Schiff, and Captain Isidore Hirschman.

in sterile bottles and kept covered with rubber caps. The accompanying photograph illustrates the system. It shows the cart with everything needed on it. This cart could easily be wheeled about from ward to ward.

CART CONTAINS, FROM LEFT TO RIGHT: (1) Tr. iodine; (2) adrenalin (1-1000); (3) atropine solution (1 cc.=gr. 1-150); (4) sterile saline solution; (5) one per cent. serum in saline; (6) polyvalent anti-pneumococcic serum; (7) water bath, 37° C., for serum; (8) cup with sterile 2 cc. syringes; (9) bucket with sterile 50 cc. syringes. In tray below, polyvalent serum.

Table VII gives the comparative mortality incidence in the influenza-pneumonia cases before and after serum treatment was begun. It would seem that there is but a slight difference between the two. However, by leaving out from the serum-treated cases those that received serum while in a moribund condition, as a last resort, as shown in Table VII, *c*, the difference in the mortality is quite marked—7.6% against 34% in favor of the serum-treated cases. It is evident to us that the polyvalent serum has been of value in the influenza-pneumonia cases met with in this camp. The value of the polyvalent pneumococcus serum treatment in lobar pneumonia cases at this base hospital was already pointed out and reported in J.A.M.A.[1]

The serum reactions in 236 cases treated through the laboratory were as follows: The intradermal test was found positive in 0.8% of the cases; the subcutaneous in 13.7%. Reactions following the intravenous inoculations were:—Following first dose, 9%; the second dose only 0.9%; none following 3d dose, while intermittant reactions (following first, but none follow-second, and again following third inoculation, etc.) 4.2%.

The very low percentage showing intradermal

TABLE VII.

(*a*) INFLUENZA-PNEUMONIA: COMPARATIVE MORTALITY BEFORE AND AFTER ADMINISTRATION OF POLYVALENT SERUM.

| | Total Number of Cases | Mortality | |
|---|---|---|---|
| | | Number | Percentage |
| Before serum was begun 9/26 to 10/17 | 519 | 98 | 18.8% |
| After serum was begun 10/17 to 10/30 | 563 | 81 | 14.4% |

(*b*) INFLUENZA-PNEUMONIA: COMPARATIVE MORTALITY BETWEEN PATIENTS HAVING SERUM AND THOSE NOT HAVING SERUM.

| | Total Number of Cases | Mortality | |
|---|---|---|---|
| | | Number | Percentage |
| Serum given ..... | 311 | 47 | 15.1% |
| Serum not given ..... | 252 | 42 | 16.6% |

(*c*) INFLUENZA-PNEUMONIA: COMPARATIVE MORTALITY BETWEEN CASES RECEIVING SERUM AND THOSE NOT RECEIVING SERUM.*

| | Total Number of Cases | Mortality | |
|---|---|---|---|
| | | Number | Percentage |
| Serum given ..... | 286 | 22 | 7.6% |
| Serum not given ..... | 277 | 67 | 24.0% |

* Cases given one or two doses of serum while in a moribund condition as a last resort, left out.

reactions is a good index to the true anaphylactic possibilities. We had no fatalities from serum anaphylaxis in this whole series; nor were there any serious consequences as a result of the serum as far as could be judged.

## SUMMARY AND CONCLUSIONS.

1. The influenza bacillus was found in the epidemic in this camp to be the predominating organism. Out of 2279 sputums examined, 76.8% were found positive to this organism.

2. The pneumococcus was found the most important associated organism, being found in 53% of the total sputums examined.

3. The examination of contacts for influenza carriers as a means of prevention, though possible, was found impracticable. The spread of this disease is too rapid, and cannot be prevented by the examination of contacts and the isolation of carriers, unless perhaps in very small bodies of troops.

4. The type determination on 440 cases of influenza-pneumonia conformed to the following: Type I, 0.23%; type IIa, 3.4%; type II, 1.8%; type III, 1.1%; and type IV, 85.8%; undetermined, being bile insoluble, 8.6%. The B. influenzae was found in 54% of the broncho-pneumonia sputums that were typed.

5. Blood cultures made on 233 cases showed 34, or 14.6%, positive. 31 of the 34 positive, or 94% were found to be pneumococcus. B. influenzae was found in 2 cases, or 5.8% (1 mixed with pneumococcus).

6. The high percentage of positive B. influ-

enzae found in the broncho-pneumonia cases that came to necropsy, in the lungs, pleural cavities, the *heart*, and *spleen* culturally, and in the stained tissue of the lungs and spleen is further evidence of the causative relation of B. influenzae to the broncho-pneumonia. It also demonstrates the frequency of the organism in the circulation.

7. The 61 consecutive necropsies showed 92% to be broncho-pneumonia; 8% lobar. Empyema (bloody-sero-fibrino-purulent) was a constant finding, being present in over 75% of the cases.

The foregoing is an account of the part played by the laboratory in this epidemic. Credit is due to the laboratory force,—officers, laboratory technicians, and enlisted personnel on duty, for the zeal and self-sacrifice shown by them all throughout this work.

REFERENCE.

[1] Medalia, L. S. M., and Schiff, Nathan: To appear in an early issue of the *Journal of the American Medical Association.*

## PNEUMONIA AND EMPYEMA.

BY 1ST LIEUT. HORACE GRAY, MEDICAL CORPS, U. S. ARMY.

[From Medical Service, Base Hospital, Camp Devens, Mass.]

(*Continued from page 307*)

*18. Clinical and X-Ray and Bacteriologic Diagnosis.*

*a. The diagnosis of pneumonia* in one case was made clinically on the day of onset, from pleurisy pain, temperature, rapid respiration, râles and consolidation; while the x-ray showed no shadow on the third day of the disease, and only on the fifth day revealed a solid right lower lobe. This is remarkable, showing an exception to the rule that the radiologist can usually see consolidation before it can be heard by the average medical man at least. For instance, several patients suspected by ward surgeons on basis of fever and rapid respiration were first positively diagnosed as pneumonia by the x-ray man. This alternating superiority of the latter with the clinician is most striking in rudimentary or abortive pneumonias. Holzknecht says (*Fortschritte a. d. Geb. der Röntgenstrahlen*, Hamburg, 1901, *Ergänzungsheft* 6, p. 82): "Radiologically it has been possible to approach an answer to the question whether certain clinically well recognized cases should be viewed as central pneumonia, or as late or non-localizing pneumonia. In favor of the former view Lichtheim adduces his relatively frequent findings of extensive radiologic foci prior to clinical localization. He gives even one case with a radioscopic focus on the third day, but with no clinical consolidation, either then or at the crisis on the fifth day." Here, too, we have seen one such remarkable case. The patient was not prostrated, and furthermore, repeated percussion and auscultation of the area shown (twice) by the ray, failed to reveal at any time either broncho-vesicular breathing, or even râles on the cough test. Credit for presentation of this value of x-ray in early diagnosis of pneumonic consolidation seems due to von Jaksch, (von Jaksch, R., *Prager Med. Wch.*, 1903, *28*. p. 495). In a later article (von Jaksch, R., and Rotky, H., "Die Pneumonie im Röntgenbilde," in *Fortschritte a. d. Gebiete der Röntgenstrahlen, Ergänzungsband* 19, Hamburg 1908, p. 18) is given detailed evidence by photographic reproductions of serial plates of pneumonia cases, taken sometimes on seven successive days, each accompanied by an anamnesis and bedside notes. For example: Figure 13, Case II, p. 4, shows still a distinct shadow of resolving pneumonia after dullness and râles have entirely disappeared. Later in the article, however, it is admitted that the skiagram cannot tell everything, and emphasis is put on the coöperation with the clinician, which has been so valuable to both parties in the study of pneumonia here. They give a striking example in Case IV., sputum positive for T. B., which "is interesting because it shows definitely, that immediately following a demonstrated diplococcus infection came an infection or possible reinfection of the lung with tubercle bacilli. Only the combination of the physical with the roentgen examination, could make clear the case, and it is very interesting that from the skiagram one can almost determine both the fact of the superposition of T. B. with cavities and the time of it." This last statement as to the importance of the "combination of the roentgen with the physical examination" is shown by a case in our series. It was like "Case IV" in that tuberculosis played a part, but unlike it in that it redounded rather to the credit of the clinician. Reg. No. 12558. First Lieutenant in the Depot Brigade, age: 24, Service, 1 year, born in Mass., was admitted to hospital, April 17, 1918. Occupation: leather merchant. Family history and past history not

remarkable. P. I.: "tired from hard work, but felt well enough till forenoon, Monday, April 15, 1918, when he noticed headache, lame back, fever and chilly feelings. Early to bed the 15th and 16th, but malaise persists."

Subjective symptoms: No sore throat, nose cold, cough, pain in chest, typhoid inoculation, nausea, vomiting, constipation. P.E.: T 100.8, p. 100-R 18. Weight with clothes, 173; stated as usually 175. Few persistent crepitant râles, but only after cough test, opposite third and fourth v.s. in right interscapular space. Diagnosis: acute bronchitis, right. The next day, April 18, the râles had extended to the apex. The x-ray reported, "Right: dense shadows in hilus. Coarse mottling, first i.s. Thickened descending trunks. Mottling in apex. Left: Dense shadows in hilus. Thickened descending trunks. Interpretation: probable T. B., right upper lobe." On April 20, the râles were so abundant as to be easily heard without cough, and the ward surgeon after looking at the plate noted: "X-Ray reports strong indication of tuberculosis. Question personally whether this rather solid shadow might not be early or slowly developing pneumonic consolidation." On April 21, Major Joslin noted: Numerous fine moist almost crackling râles right apex, now heard even below angle of scapula; too easily heard and too rapidly extending to correspond with T. B." On April 22, the evening temperature which had varied from 100.8 to 100, became normal, and remained so thereafter. The morning temperature had risen to 99 only once, the morning after admission. The respirations stayed at 18 or 20 with two exceptions at 22. Sputum was obtained only after forced coughing, on April 20, 21, 22, 23 and 24th; all five were negative for tubercle. The W.B.C. on April 21 was 11,400 with a polymorphonuclear count of 74%. On April 25, a second x-ray showed, "Right: dense shadows in hilus. Coarse dense mottling first to third i.s. Coarse mottling in apex. Thickened descending trunks. Left: dense shadows in hilus. Coarse soft mottling in apex. Interpretation: T. B., right upper lobe, probable beginning T. B., left apex." On April 27, there were rare râles and only after cough, and none at all on April 30. A third plate showed on May 2, "chest practically clear." The next day he was returned to duty, with the final diagnosis: Pneumonia, lobar, right upper lobe, bacteriology unknown.

*b. Lobular pneumonia* has been a problem both for the stethoscope and the ray. It was emphasized by Jaksch when he said: "From the roentgenogram one *cannot distinguish* with certainty a *lobar* pneumonia from a lobular, since in the stage of resolution at a time when the physical signs of a lobar pneumonia are still present, frequently the x-ray signs indicate only lobular foci. As to the character of the pneumonic shadow, it is in the first place never dense and homogeneous, by which token it is clearly differentiated from the shadow of a pleural effusion or a lung tumor . . . . Furthermore, it is noteworthy that the shadow is always veil-like, though often with some denser and lighter spots, which produce that map-like or marbled appearance; the edge is never sharp." The following statement had been made by Holzknecht: "The usual small focal form of lobular or catarrhal pneumonia gives poor radioscopic results. Its focal shadows are most indistinct: small depth and washed out edges which merge into the surroundings. Larger confluent foci give clear pictures . . . . The variation observed in the depth and size of the shadows on repeated examinations I have attributed mainly to the changes in Roentgen tubes and in "Roentgenkritik." The same authority sums up much in the statement elsewhere: "The clinical and radiologic changes by no means keep step. In one case despite clearing of the shadow, there may be at the bedside no material change; in another case the reverse may be true, this latter being probably due to resolution of the parietal portion of the consolidation with consequent disappearance of the dullness."

Norris (Osler and McCrae's system, p. 247) begins in words nearly identical with those of Jaksch, and concludes with the following more conservative view as to x-ray marvels: "The x-ray does not enable us to distinguish definitely between lobar and lobular pneumonia or to make a diagnosis of consolidation before this is demonstrable by physical signs except in cases of a true central lesion."

*c.* Jaksch makes the further interesting statement, in view of our experiences reported in paragraphs 36 and 37: "That such a *shadow does not* always *justify* the *diagnosis* of *pneumonia,* is shown by a case observed in our clinic and described in detail by Vlach, A. (*Deutsche mediz. Wch.,* 1905, *31,* 1532), in which the shadow was dependent on an atelectasis."

Vlach's article, the elaborate presentation of which with references is striking in a weekly, offers an interpretation of the atelectasis with which the medical men here have been inclined to agree despite the pathological verdict of no pneumonia (cf. par. 37). He says: "The cadaver's bilateral atelectasis of both lower lobes offered during life all the signs of double pneumonia, and it seems very probable that beside the severe purulent bronchitis there were rather large lobular foci of pneumonia in both lower lobes, at least during the earlier days of the stay in hospital."

This case was so fascinating to the Prague Professor that it formed the subject of a third paper (von Jaksch, R., *Berl. Klin. Wch.*, 1905, *42*, p. 434), in which he says: "This observation forms a further proof that radiography shows the fact of a change but not the nature of the change in the lung tissue, whether infiltration, or exudate, or atelectasis."

In a recent "Comparison between clinical and roentgen findings" (Chapin, H. D., *Jour. A.M.A.*, May 11, 1918, *70*, 1357), there was "substantial agreement" in 80% of the ninety-seven children. It was a tie between the radioscopic and clinical examinations, each indicating pneumonia in five cases missed by the other examination.

*d.* The *high diaphragm* on the affected side in pneumonia has been recently discussed in a note by L. W. Gorham (*Albany Medical Annals*, March, 1918).

*e. Big heart.* In 1901 Holzknecht pointed out the "striking phenomenon that even in young people with negative cardiac histories, and even often in the first days of the disease, there is seen a considerable enlargement of the right part of the heart shadow, and a stronger and more distinct pulsation of the middle curve on the left border (arteria pulmonalis), which disappeared with resolution and in one case (three days after the crisis) went even before that. The first part of the phenomenon depends perhaps on acute dilation of the right heart, the second on the stronger filling of the pulmonary artery. It would be in the highest degree worth noting whether the auricular dilation is absent or vanishes early in those cases which later develop that most terrible complication, cardiac insufficiency." Major Davis's work at this hospital has demonstrated in this connection that in *many* cases the dilation is by no means transitory, and must be seriously considered in pneumonia convalescents as a routine before disposition to duty. This need not be necessarily done by the plate or the fluorescent screen, but may be done (and possibly more satisfactorily done,—experience will tell) by noting the effect of graded military exercises in a convalescent ward.

Enlarged hearts are also seen in Jaksch's illustrations, but do not seem to have excited his comment. Chapin is the earliest student yet traced to report: "In *most* of our cases the shadow of the heart was increased in pneumonia, especially in lobar. The enlargement was most marked in the right heart." Henchen's monograph ("Über die acute Herzdilatation bei acuten Infections,"—*Krankheiten*, Jena, 1899) has, unfortunately, been inaccessible here, as indeed, literature in general.

Independent and intensive study here through the past winter has then resulted in the recent emphasis (Davis, E. L., "Roentgen Study of 1000 Chests," *Journ. A.M.A.*, May 25, 1918, *70*, p. 1528) on the value not only of localized consolidation and high diaphragm but especially of cardiac enlargement in the diagnosis of pneumococcus infection. *Major Davis seems to have been the first to take more than passing notice of enlarged hearts in pneumonia, and to emphasize that this phenomenon is not simply a complication but is (at least in lobar pneumonia) a fairly constant sign, and further a sign of early diagnostic value.* That attention to it will, in a great majority of cases, with rapid respiration and cough, betray lobar pneumonia before there is any shadow, seems proved by his work. This is a real step in the progress of early diagnosis, over the study by von Jaksch. While both these students seem to have outstripped the bedside worker in early recognition of the presence of pneumonia, the recent demonstration of the value of "râles on cough" in tuberculosis encourages the belief that a *careful parallel study of pneumonia-suspects by x-ray and by the cough test may show after all that râles—provided this cough technic be insisted on—is the earlier sign.* In the absence of literature it it not now practicable to determine whether this was in mind when Professor De la Camp (*Fortschritte auf dem Gebiete der Röntgenstrahlen*, 1905, *8*, 323) wrote: "Lepine has asserted on the basis of his observations that under certain conditions an existent pneumonia need give neither percusory nor radiologic findings."

*The diagnosis of fluid* similarly was made sometimes by the medical man's needle, when the x-ray was *not* blotted out. This occurred only rarely after the beginning of the work, because one of Major Davis's laboratory assistants built for him a rough wooden frame to slip onto the truck under the pillow, thus holding the patient in a semi-recumbent position, and permitting plating of nearly every patient without any ill effects being noted after return to the ward. On the other hand several pneumonias persistently watched for fluid by both ward surgeon and assistant medical chief, and persistently revealing loud breath sounds, were first spotted by the radiologist as having fluid, which in turn, was proved with the needle.

*The diagnosis of the organism* is a matter of such vital importance to the patient that the physician needs to struggle against the fascinating simplicity of the skiagram and instead to become earlier suspicious of pneumonia and to secure earlier an early morning sputum after forced coughing.

*19. Physical Signs.*

*a.* While in many cases there was no single presenting sign but several were noted simultaneously, the frequency with which each individual sign was present *at onset* during the six months series analyzed, 241 cases, was as follows: Fever, 77% of cases; rapid respiration. 50%; pain on side of pneu. (none on opposite side), 36%; râles, 5%; rusty sputum, 4%; rigor, 4%; consolidation, 3%;

*b.* The *regularity* of association of the signs with pneumonia was: Fever in 99%; râles in 93%; rapid respiration, 90%; consolidation, 86%; pain in side, 56%; rusty sputum, 15%; rigor, 5%.

*c.* The *temperature* for the evening of the day of admission averaged *102.1*, varying from normal to 105.8. If, however, one studied the highest value of the four temperatures taken during the first thirty-six hours in hospital (usually, but by no means always, the evening temperature of the second day), the average was *103.7*

*d.* The *respiratory* rate (1) On the evening of admission varied in 241 cases from 18 to 62, with an average of *25*. (2) If, however, one studied the highest rate out of the four recorded during the first 36 hours in hospital, the extremes of variation were the same, 18 to 62, but the average was *28*.

As a *control* on these two remarkable figures in pneumonia, 200 consecutive completed cases of "Bronchitis acute" were reviewed. The respirations were found (1) to vary from 15 to 28, with an average of *20*, and (2) to vary from 16 to 32, with an average of *21*. As a second control 200 consecutive completed cases of "Tonsillitis acute" were reviewed. The respirations were found (1) to vary from 16 to 48, with an average of *22*, and (2) to vary from 18 to 48, with an average of *23*. It is surprising that tonsillitis should result in a higher respiratory rate than bronchitis, perhaps due to higher temperatures.

The conclusion seems justified that any respiratory rate of 24 or more is a danger signal. In all such cases one should make a daily hunt for râles by the cough test or (if bronchitis is present) for consolidation signs such as broncho-vesicular breathing or x-ray; and also make the patient cough daily at 6 A.M. for at least three minutes by the watch until sputum has been secured

*Pain* in one chest was associated with 64% of the lobar pneumonias and with 40% of the broncho-pneumonias.

*Râles* were noted: Before consolidation, in 116 cases; with consolidation, in 55 cases; after consolidation, in 53 cases; at no time, in 17 cases. In other words, despite the teaching that crepitant râles are an early sign of pneumonia and even with the help of the bronchitis that was so often the admission diagnosis, we failed to find these early râles in 22% of the cases. Probably the tuberculosis trick, "breathe out and cough," would enable earlier diagnosis by this sign.

*Consolidation* was present in a *lower* lobe in *73%* of the cases. A strikingly large proportion of these were diagnoses not by the ward surgeon but by one in particular of the assistant chiefs on the medical side. Repeatedly his note is found on the briefs: "Broncho-vesicular breathing after cough, inside angle of scapula," or "cough distinct at scapular angle," or "few crepitations on cough at angle of scapula." In suspected pneumonia more general concentration of attention on what might be called Terry's Point is suggested, analogous to the well-known concentration on the apices in suspected tuberculosis.

*Whispered pectoriloquy* is a sign ordinarily regarded as a refinement of physical diagnosis, interesting to students but of small practical value. In the early diagnosis of consolidation,

however, it is sometimes beautifully distinct though one fails to note the usual signs (slight dulness, broncho-vesicular breathing, localized weak breath sounds, râles on the "cough test"). It was especially valuable in two recent cases, with dulness and such dim breath sounds that no broncho-vesicular quality could be determined, yet W. P. was astoundingly clear and localized. In one of these cases the diagnosis was made of both fluid and solid, and an exploratory tap got 25 cc. fluid, culture of which revealed streptococcus hemolyticus.

The value of W. P. seems to be dependent on the following ideas: (1) The *Whispered* voice . . . . . has the advantage over the . . . *spoken* voice that it does not set up sympathetic vibrations in the chest" (Norris, in Norris, G. W., and Landis, H. R. M., "Diseases of the Chest," Phila., 1917, p. 135), which blur the syllables used (such as 1-2-3 or ninety-nine). (2) The attention should, therefore, be focussed on the intensity or *clearness,* not on the loudness. (3) The Whispered voice is normally not transmitted clearly. (4) When the W. V. *is* transmitted clearly, it is called Whispered bronchophony or *increased transmission of the W.V., abbreviated W.V.*

(5) When this sign is more marked, so that each syllable is startling clear cut, it is called *exaggerated bronchophony* or *transmission of syllabic speech* or *syllabification* or *whispered pectoriloquy* (commonly abbreviated W.P.).

(6) It is, in Cabot's opinion, a more delicate test for small areas of solidification than tubular breathing" (Cabot, R.C., "Physical Diagnosis," N.Y., Ed. 6, 1915, p. 163). In the wards here also it seemed more delicate, in some cases at least, and in those of great value.

(7) The rationale for this delicacy seems to be that the test has a sharp end-point like the more satisfactory chemical indicators (*e.g.* Phenolphthalein in gastric analysis) or like the "something or nothing" of that light percussion which is being increasingly advocated. In all three methods, W.P., titration, light percussion, the test for presence or absence is more fool proof than other tests dependent on partial changes in test of color or quality of sound (*e.g.* from compensatory to rude to broncho-vesicular breathing).

Other signs tabulated in the literature but not analyzed in this series were:

(1) *White blood counts,* because not found anything like so helpful as is often taught.

(2) *Blood pressure,* for the same reason.

(3) *Herpes,* because recorded so infrequently.

(4) *Character of respiration* (shallow grunting, labored, cyanotic), for the same reason.

(5) *Blood cultures,* because done in rare cases only.

TABLE XVI. PHYSICAL SIGNS.

| ORDER OF APPEARANCE | FEVER | RÂLES | RAPID RESP. | CONSOL. | PAIN IN SIDE | RUSTY SPUTUM | RIGOR |
|---|---|---|---|---|---|---|---|
| 1st ..... | 186 | 11 | 120 | 7 | 18 | 10 | 10 |
| 2nd ..... | 50 | 98 | 71 | 62 | 22 | 7 | 1 |
| 3rd ..... | 3 | 81 | 24 | 71 | 12 | 12 | |
| 4th ..... | | 26 | 2 | 58 | 10 | 5 | |
| 5th ..... | | 7 | 1 | 8 | 1 | 1 | |
| 6th ..... | | 1 | 0 | 0 | 1 | 2 | |
| Present in cases | 239 | 224 | 218 | 206 | 134 | 37 | 11 |
| Absent in cases | 2 | 17 | 23 | 35 | 107 | 204 | 230 |
| Present in per cent. of cases . | 99% | 93% | 90% | 86% | 56% | 15% | 5% |

*(To be continued.)*

## Clinical Department.

### REPORT OF A UNIQUE CASE OF FOREIGN BODIES IN THE STOMACH.

BY ALFRED C. CALLISTER, A.B., M.D., BOSTON,

*Resident Surgeon, Boston City Hospital.*

THE case reported here is of passing interest because of the large number, the large size, and the unusual type of foreign bodies, found in the patient's stomach.

The patient, J. R. S., aged 32, admitted to the Boston City Hospital from the Boston State Hospital was a dementia praecox paranoid, a type which is quite likely to swallow unusual objects. A brief transcript of the portion of the Boston State Hospital record which is pertinent to this paper is as follows:

"Patient has been losing weight recently. He had several times been prevented from swallowing pieces of metal. February 5th, it was reported that he had been swallowing sections of bed springs several weeks ago. For the past two weeks he has had some pain in his abdomen. He claimed to have passed a little blood in his feces, but this has not been observed. He also claims that he has vomited occasionally, but he has been kept under close observation and this has not proved to be true. He was given an enema on February 5th with good results,

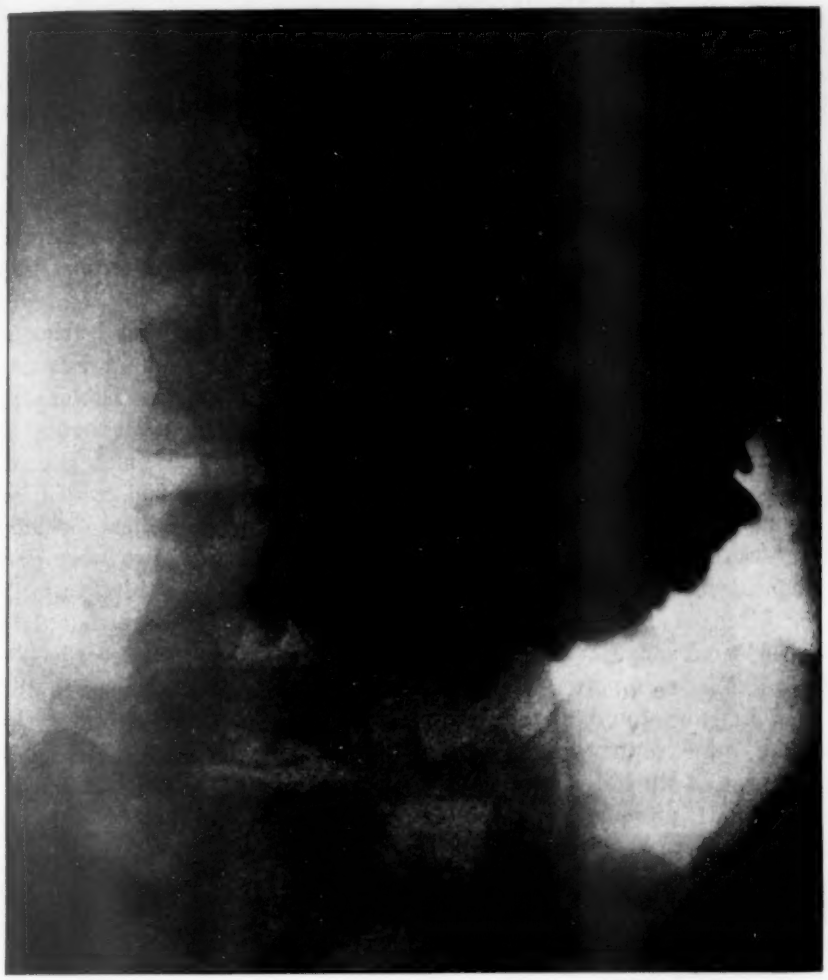

FIG. 1.

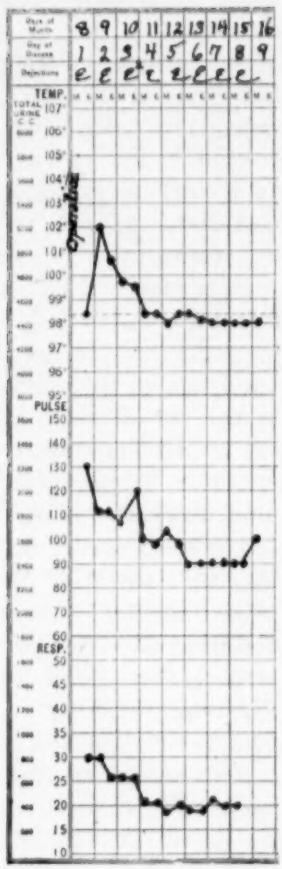


FIG. 3.

although he said that his bowels did not move for several days. February 6th and 7th he was given milk and retained it. On February 5th, temperature was 101 degrees; pulse, 90; respirations, 24. February 6th, temperature, 100 degrees in A.M., 102 degrees in P.M. February 7th, temperature 100 degrees; pulse, 92; respiration, 26. There is a large mass in left upper abdomen which moves considerably with change of position on part of patient. Heart and lungs negative."

FIG. 2.

Admitted to Boston City Hospital on February 7 at 10 P.M. Temperature was 102.4 degrees; pulse, 100; respiration, 26. Patient somewhat emaciated. Physical examination essentially negative except for abdomen. Abdominal palpation revealed a large firm mass lying in the left upper quadrant which was hard and evidently contained numerous distinct hard objects which seemed to have sharp ends. On sitting the patient up the mass gravitated to the median line to the level of the umbilicus. There were general rigidity and tenderness over

the upper abdomen and the patient was in considerable pain. An emergency x-ray plate of abdomen was taken (see Fig. 1), which showed numerous metallic bodies all lying in the stomach and the ends of which resembled sections of bed springs. Patient stated that during the last three months he had swallowed "130 bed springs." A tentative diagnosis of perforating foreign bodies of the stomach was made and an immediate exploratory laparotomy done.

A rectus incision in the upper left quadrant was made. There was a small amount of slightly cloudy fluid in peritoneal cavity. The stomach was partially delivered and walled off by gauze packing. An incision two inches long was made on the anterior surface of the fundus in the vertical axis of the stomach just above the greater curvature. There was an escape of some bright blood and considerable dark fluid from the stomach. One hundred forty-one foreign bodies were "fished" out of the stomach (see Fig. 2), including 128 sections of bed spring, measuring 8 cm. in length and 1 cm. in diameter on either end, nine copper pennies, three peach pits, and a piece of tin foil, the total weighing two and one-half pounds. The gastric mucosa was considerably eroded and contained multiple small bleeding points. Incision in stomach closed and peritoneal cavity closed with drainage.

Accompanying chart (Fig. 3) shows condition of patient, and although he is very unruly and difficult to handle, he is running a normal convalescence.

Twenty or thirty years ago this case would have aroused unusual interest on the part of the profession, but today, with the marked advance of abdominal surgery, the case is only worthy of reporting because of the large number and unique type of the foreign bodies found.

## Selected Papers.

### INFANTILE SCURVY.*

BY JULES COMBY, M.D., PARIS, FRANCE.

*Physician to the Paris Hospitals.*

IT is now upwards of twenty years since pediatric physicians in France began to publish typical cases of infantile scurvy, or Barlow's disease, and for my own part I have recorded no fewer than 42 cases of my own. Since the last of my communications on the subject, I have collected notes of 13 new ones showing the comparative frequency of this condition in Paris and the ignorance that still obtains in medical circles in respect thereof. It is for this reason that I think it well to return to the subject, even at the risk of trespassing on your patience.

The first case of infantile scurvy, or Barlow's disease, that was identified as such in France, was placed on record by Moizard, in December, 1897 (*Journal de Lucas Championnière*). I met with a second in May, 1898, and Dr. A. Netter saw a third in October, 1898, which he brought before the Hospitals' Medical Society on November 4, 1898. The first two were due to Gärtner's maternized milk, the third to milk sterilized by Soxhlet's method. Since that date numerous cases have been placed on record.

At first there was some hesitation as to the pathogeny and nosology of the affection, the majority supporting Barlow's view of its scorbutic nature, while a minority were inclined to regard it as acute rickets or even hemorrhagic rickets. Nowadays, however, we are virtually all in agreement, and I need only dwell upon the diagnosis and the treatment.

It was in 1883 that Sir Thomas Barlow published his magisterial essay on the disease that bears his name. In this remarkable work the author makes it perfectly clear that infantile scurvy is identical with scurvy occurring in the adult, from which it differs only in respect of its predilection for the bones (subperiosteal hematomas). After this epoch-making paper, no lingering doubt remained, and infantile scurvy was accorded the freedom of the clinical world. In 1889 sterilized milk was introduced into France on a commercial basis, and ere long its use began to spread. I prescribed it extensively in 1890 in the treatment of infantile diarrhea during the hot weather, as did also Dr. Variot. As the milk did not prove to be an unmixed blessing its place among well-to-do persons was soon after taken by Gärtner's humanized milk. It was at or about this time that one began to hear of infantile scurvy in Paris.

In his thesis, Dr. Paugam (Paris, May, 1901) mentioned eleven cases of Barlow's disease, seven of which were due to humanized milk. This, of course, soon caused Gärtner's human-

* From the *Medical Press*, January 29, 1919.

ized milk to disappear from the market, but Backhaus's remained, and is still employed in certain cases, though it is as productive of scurvy as any of the others. Then came the homogenized milk, which is still with us in two forms, *viz.*, the pure natural homogenized milk and the hypersugared milk.

It may be conceded that sterilization of milk constituted a great progress in puericulture, but every medal has its reverse, and in this case the reverse is the liability thereby created of inducing Barlow's disease. This fact requires to be constantly borne in mind in order that the risk, being foreseen, may be obviated. We may lay it down as an axiom that every child brought up on a sterilised food (milk or otherwise) for several months together, to the exclusion of any *living fresh articles*, is threatened with infantile scurvy. If we get that idea well into our heads we shall do like the Americans, we shall not wait for the supervention of the accidents which are so easily overlooked, but we shall avert them by giving every day a teaspoonful or a tablespoonful, according to the age of the child, of orange juice or the juice of some other fruit (grape juice, diluted lemon juice, etc.).

Before discussing the treatment of infantile scurvy I should like to say a few words about the diagnosis. Out of 55 cases of infantile scurvy that have come under my observation upwards of 45 had been the subject of mistaken diagnosis at the hands of practitioners. One infant was declared to be suffering from rheumatism, and was given salicylate of soda; another was thought to be developing acute ascending poliomyelitis, infantile paralysis, and was therefore electrified, massaged, and rubbed, causing the unfortunate infant much and unnecessary suffering. Another, suspected to be suffering from syphilis, was treated to mercurial inunctions, while such an one, diagnosed to be suffering from acute osteomyelitis, was slit open, the bone trepanned, etc. In other instances a diagnosis of coxalgia or Pott's disease led to the use of splints or plaster corsets. I stop here lest I should trespass on your patience, for the list is a long one.

Yet the characteristic symptoms of infantile scurvy are limited to a few striking manifestations that ought to attract the attention of every observant intelligent practitioner. They are easy to bear in mind, but should always be before us:

1. Remember that we are dealing with quite young children, babies between 6 and 18 months of age, brought up on artificial foods, mostly on fixed or homogenized milk, a few on sterilized milk, either at home or at the *crêche*.

2. All scurvy children present in a more or less marked degree painful pseudo-paralysis of the lower limbs, and movement of the leg elicits signs of distress.

3. Some of them display diaphyseal swelling affecting the tibia or femur (sub-periosteal hematoma).

4. Most of the little patients who have already cut their teeth are seen to have spongy, bleeding gums, and the child's mouth, when it cries, fills with blood.

Now this is quite enough to establish the diagnosis, but these four data must be borne in mind. This remark is the more necessary seeing that during the last few months I have met with some 13 additional cases which, in nine cases out of ten, had been overlooked by the practitioner. I need merely mention the last two, which will serve as types.

On August 22, 1918, I was called in great haste to a female infant 18 months of age living just outside Paris. She was a fine child, weighing upwards of 12 kilogrammes. She had cut 12 teeth. The medical man in charge of the case, in view of the pains in the legs from which the child had been suffering for six weeks, had prescribed salicylate of soda and massage. The symptoms got worse, and he suggested that it might be infantile paralysis, ignoring the ecchymoses and bleeding from the gums, and not taking into account the bringing up of the child on sterilized milk and malted milk. Naturally, things were going from bad to worse, but as soon as I had made the diagnosis—as any one of my colleagues would have done—a suitable treatment soon put matters right. The treatment was as follows:

1. The child to be left in its cradle, not to be moved, not to be rubbed, or bathed, or dressed—in fact, avoiding every kind of movement for the first few days.

2. Every sort of prepared milk to be discarded once and for all, plain cow's milk to take its place.

3. A teaspoonful of grape juice to be given twice a day. In winter I give orange juice, or failing that, a little diluted sweetened lemon juice.

4. In somewhat older children we may give a few spoonfuls of mashed potatoes.

Under this treatment the child that had been under observation for six weeks recovered in a week.

On August 27, 1918, I was called to see a child eight months old, brought up on the bottle and fed on sterilized milk distributed by the municipality. He cut his first tooth at six months of age, and now has four. Round the two upper incisors the gums are swollen and of a dark color, bleeding readily. A doctor was shown this but failed to diagnose the cause, merely ordering the gums to be dabbed with peroxide of hydrogen. But the infant was also suffering from pains in the legs, and the left leg was quite inert, causing much pain on the least movement. The second doctor diagnosed coxalgia. A third, more prudent, but apparently not more advanced, declined to express any opinion at all. Yet, as you see, the diagnosis was plain enough. A week of the above treatment, and health was restored. The rapidity with which these children recover, indeed, is one of the remarkable features of a remarkable disease.

Cases of the kind are now so commonly met with that it is rarely thought worth while to publish them, yet it is surprising how many practitioners fail to open their eyes to the significance of the symptoms. This is simply because they "do not think of it," it "does not occur to them." Well, one object of my paper is to make sure, as far as I can, that it shall occur to them, that the relationship of the bleeding gums and painful quasi-paralyzed limbs to a too restricted diet shall be engraved on their minds. It is humiliating for our profession that such mistakes should continue to be made, and it is to be hoped that our hospital physicians will do what lies with them to impress upon students the importance of bearing in mind the disastrous consequences of improper or inadequate feeding in early infancy.

ELECTION OF DR. FLEXNER.—At the annual meeting of the American Association for the Advancement of Science, recently held in Baltimore, Dr. Simon Flexner, director of the laboratories of the Rockefeller Institute for Medical Research, was elected president of the Association for the ensuing year.

## Book Reviews.

*Dispensaries—Their Management and Development.* MICHAEL DAVIS, JR., Ph.D., Director of the Boston Dispensary, and ANDREW R. WARNER, M.D., Superintendent of Lakeside Hospital, Cleveland. New York: The Macmillan Company. 1918.

This is an interesting presentation of the history, management and development of dispensaries in the United States. Devoting a few pages to the story of the establishment of the first dispensaries of the English-speaking world in England, the book goes on to describe the splendid results which have been accomplished in this country through a form of organization which has for its first motive a direct endeavor to combat disease and promote the public health. It traces the scope and extent of the clinics, social service department and the follow-up work, and points out the relation between the hospital and the dispensary. The text of the law passed in March, 1918, requiring that all dispensaries shall be licensed by the State Department of Health, is reprinted in full. There are also helpful suggestions for by-laws and rules which may be applicable to the efficiency dispensaries of the future, which must now be conducted under the unusual conditions created by the war. It goes into many of the practical details which people working in dispensaries particularly need. It is a valuable book for administrators, public health workers, and for all who are interested in better medical service for the people. At the same time, it sets forth to the general reader the importance of the fact that there is no greater economy to a state or nation than the health of the individual.

*Tumors—Innocent and Malignant.* By SIR JOHN BLAND-SUTTON, LL.D., F.R.C.S. New York: Paul B. Hoeber. Sixth Edition. 1918.

The author aims to give a complete description of the subject of cancer. The contents are divided into a preliminary chapter of a general discussion and into a specialized section. The preliminary chapter gives the liability of organs to disease, environment in relation to tumors, age distribution, natural history and malignant transformation. The remainder of the volume is divided into a tentative classification of the regions of the body with reference to tissue and the formation of cancer, explaining in detail the symptoms, diagnosis, treatment and prophylaxis of the disease. The theories of the cause of cancer and the use of the x-ray are discussed. The volume contains 740 pages and numerous illustrations.

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## PHILIPPINE HEALTH SERVICE.

THE annual health report for the year 1917 of the Philippine Health Service gives a detailed survey of the work accomplished by the various divisions of the Service during the year. The work as a whole has progressed satisfactorily, with a splendid manifestation of enthusiasm and coöperation between the several departments. Perhaps the most notable results have been obtained in water supplies and sewage disposal, in the formation of women's clubs and societies for the protection of early infancy, and in the sanitary organization of the various provinces.

The epidemiological report shows that cholera has been kept under control, though sporadic outbreaks were prevalent and incessant watchfulness and prompt energetic work were constantly required. There has been a seasonal incidence of dysentery of progressively decreasing importance, due largely to improved water supply and sewage facilities. Plague has not been present. That smallpox susceptibility has increased is shown by increasing varioloid, and it is probable that the immunity established by general vaccination in 1906 is wearing off. Malaria is still very prevalent in inaccessible remote districts, but is being eradicated in centers of population susceptible to mosquito extermination and free dispensing of quinine. Rabies has been controlled by distribution of antirabic treatment as well as by the destruction of over 22,000 stray dogs. Attention has been more particularly directed through two special commissions to the incidence and careful diagnosis of typhoid with a resulting increase in the number of cases reported, as compared with previous years. Diphtheria has been materially curtailed by the free distribution of anti-diphtheria serum. Preliminary surveys have been conducted as to the prevalence and local etiology of tuberculosis, and sufficient statistics have been compiled to warrant a definite and organized sanitary campaign against this disease for the next several years. As a result of the data obtained by the sanitary commissions and of the statistical study, it has been shown that the death rate from tuberculosis in the Philippine Islands is 2.64 per thousand of the population. This means, on an estimated population of 10,000,000, 26,400 deaths from tuberculosis per year. Routine fly, rat, and mosquito extermination work has been carried on in collaboration with epidemiological efforts.

The sanitary work in the provinces has been one of the most important branches of work for the year 1917. Perhaps the greatest results of the work of the sanitary commissions is shown in the reduction of the infant mortality. Six towns, upon survey, showed a decided reduction in the death rate of children under one year of age, two towns remained stationary, and one showed a slight increase. A particularly important branch of work of the sanitary commissions has been the development of the Antipolo sewage disposal system and the sanitary house. Another future benefit of far-reaching importance will be the installation of a system of health organization in sanitary divisions which, for want of a better name, has been tentatively designated "the automatic health organization." This system consists, briefly, of a series of maps, curves, and charts, card indexes and cross indexes, based upon the data which have been obtained through the work of the sanitary commissions, and which will be installed on the

ground in each sanitary division of the Philippine Islands as rapidly as may be possible. When this type of health organization has once been established, it will be possible for the health officer to know at once what particular factor is bringing about an increase in morbidity or mortality and it will indicate with a reasonable degree of exactness the probable origin of the infection which is producing the morbidity or mortality.

Three additional provinces, making twenty-seven in all, have been organized into sanitary divisions. Fifty-six new dispensaries, serving 127,000 population, have been established, making a total of 442 dispensaries, serving over 500,000 people. Three new provincial hospitals have been opened or started, and four new provincial laboratories have been provided for, making twenty-two in all. Forty district nurses made over 18,000 visits to the homes of sick, and gave instruction in hygiene, nursing, and dietetics. The district nursing division has also assisted in the organization of women's clubs in provincial towns, has assisted in baby contests, has had charge of exhibits at various town fiestas, has distributed large numbers of circulars on health subjects, and has given a great many demonstrations in the preparation of balanced diets. Fifty-four clubs have been formed for women, making a total of 111 in all. This is, perhaps, the most effective single measure yet evolved in reducing infant mortality, correcting the very prevalent dietary errors, improving domestic hygiene, and improving the family, social, and economic standards.

The Hospital Division has awakened the interest and the enthusiasm of the authorities and inhabitants of each province. In spite of the high cost, both of building materials and of equipment and instruments, the provincial boards persevere in their endeavors to build a hospital in each province. Albay has commenced work on its hospital; Bohol, Pampanga, and other provinces have hospital projects under consideration. The Southern Islands Hospital in Cebu was separated from the Philippine Health Service on January 1, 1918, and placed under the control of the General Hospital in Manila. There are now under the control of the Health Service and supported by Insular funds the hospitals of San Lazaro and Bilibid in Manila; Bontoc, Baguio, and Kiangan hospitals in the Mountain Province; Bayombong Hospital in Nueva Vizcaya; and the hospitals organized by the Health Service in the Department of Mindanao and Sulu. The hospitals supported by provincial funds and in regular operation at present are those at Naga, Ambos, Camarines, and Tacloban, Leyte.

Bilibid Prison is divided into two sections: one for prisoners with short sentences, the other for long-term men. The second section contains the industrial shops, including machine shop, carpenter shop, furniture making, bamboo manufacture, and the making of other useful articles. Laces, embroideries, and similar articles are made in the women's section. The admission to the hospital is very large. The hospital consists of four large wards, a woman's section, two large spaces on the roof, operating, sterilizing, and dressing rooms, laboratory and dispensary, a large space for contagious and isolation cases, an out clinic, and a quarantine for all prisoners. The laboratory has been in operation since 1909, the work being performed by competent prisoners, under the supervision of the chief and assistant chief of the hospital.

The Culion Leper Colony has done good work in spite of the serious handicap of lack of funds. The lepers themselves built a clubhouse, exclusively with leper money and workmen, and they have taken great interest in the planting of home vegetable gardens. During the greater part of the year nurses have visited the sick, bandaging the wounded and giving simple talks to the patients with the hope of improving the social conditions of the lepers. Comparatively little time has been available for research work among the lepers.

The medical inspection of schools presents another interesting phase of the Philippine Health Service, and it has been available for research work among the lepers. The medical inspection of schools presents another interesting phase of the Philippine Health Service, and it has been developed to the fullest extent possible with the present appropriations. A nurse has inspected every pupil and has sent all children with abnormalities or defects to clinics for treatment. So far as the limited personnel available permitted, the inspection work was extended to the homes of the pupils.

This report of the Philippine Health Service contains detailed and tabulated statistics relating to various hospitals and divisions which are under its control.

## MEDICAL ASPECTS OF THE SELECTIVE SERVICE SYSTEM.

THE second report of the Provost Marshal General to the Secretary of War on the operations of the selective service system to December 20, 1918, covering the period from May 18, 1917, has lately been released for publication. Aside from its value as a military report, Provost Marshal Crowder's summary is one of especial historical interest to the whole American people. The raising of an army by selective draft was an event which made itself felt in every home, office, shop, factory and farm throughout the country. Never before in the life of our Nation have we been called upon so universally to serve, and the hearty coöperation of civic agencies with the governmental authorities has proven beyond a doubt that we were unreservedly devoted to the task of raising an army which would go "out to win." In such a report it is not possible to go into lengthy details of the manner of service rendered by each link in the chain, but such duties as were obviously the most important have been described here. A few words of introduction acquaint us more generally with the objects of the draft—"To enroll for service over 24,000,000 men; to mobilize a selected army of more than 2,800,000, a million of them within the space of 90 days; to have presently available for military duty 2,000,000 additional fighting men; to classify this vast group of manpower in the order of its military and industrial importance, to maintain them in a status of maximum efficient production and to pave the way to a speedy return to normal peacetime pursuits while recruiting the full fighting strength of the Nation—these are results which would be instantly rejected as impossible did not the actual facts stand as irrefutable testimonials of their accomplishment." The report has also shown us that we have profited by the experience of the draft called for the Civil War and in turn have also profited by the experiences of the first six months of 1917. As a Republic opposed by inheritance and tradition to military compulsion, the system of selective draft became popular as the people's task and its achievement as their own reward.

In consequence of the publicity brought about by the selective draft, many diseases heretofore hidden were uncovered and it is with the results of the efforts made in this direction that the medical profession is particularly concerned, for after all it was from Class I that the army was raised (no other class having been drawn upon), that class of men who were physically, mentally, and morally fit to fight. In this connection it is interesting to know that when the selective service regulations were made up, provision was made for the organization of medical advisory boards consisting of three or more members whose duties were to examine physically those cases which had been appealed to them from local boards. The members of these boards were named by the governors of their respective states and appointed by the President. There were 1,319 boards distributed throughout the States with a total membership of 9,577. By means of these highly trained technical agencies, many obscure diseases were detected and thus the local boards were greatly assisted in their classification of men. To these men, and to all members of the medical profession, a debt of gratitude is forthcoming from the Nation. They gave of themselves and of their time unsparingly.

It was soon found that the standards of physical examination based on those of the Army under the volunteer system were too severe and a new set of standards was made in June, 1918. This, of course, resulted in some confusion, but it would seem, in no serious harm. By the original plan the registrant was either expelled or rejected for military service on the physical qualifications. By the new plan, four groups were provided—Group A, those unconditionally accepted for general military service; Group B, those suffering from remediable defects; Group C, those accepted for limited service on account of defects which fall within the proper standards; and Group D, those who were unconditionally rejected for all military service. The disposition of the members of these several groups was carefully made under experienced medical direction. Arrangements were made by hospital authorities and medical men for having remediable defects corrected without expense to the registrant. Group B proved an important reservoir of man power. Group C men filled many responsible positions in the ranks of the Army, and Group D men were large in numbers. Among Group D it was necessary to detect malingerers—those psychoneurotics, confirmed neurotics, etc., and it often became a knotty problem for the medical examiners to decide whether the defects complained

of were sufficient cause for rejection. Frequently, upon examination at mobilization points by Army doctors, there was further rejection, but this was due to one of three things—variances due to physical fitness of registrants in different localities; variances due to different action by different local boards, or variances due to different action by different camp surgeons.

Marshal Crowder's report is replete with tables of comparison which demonstrate in a concise manner the striking figures available in the department of physical examination of registrants under the selective service regulations. The successful work of the medical profession in meeting this national crisis is splendid demonstration of unflinching loyalty.

## RETURN OF TWO BOSTON HOSPITAL UNITS.

THE Massachusetts General Hospital Unit, Base Hospital No. 6, has returned to the United States after twenty months of active service in France. There were 22,000 cases treated by the unit at its hospital, which had 1,000 beds originally, and later, 5,000. Of these cases, 17,466 were surgical ones. There were only 384 deaths, of which 70 were of a surgical nature. This record by no means covers the entire work of the members of the unit. Behind the front lines, some of the best work was done. Stationed at field hospitals they cared for the wounded under constant fire and performed by candle light successful operations which would have baffled expert physicians in the best equipped hospitals in the days before the war. During the period of the great German offensives, many members worked until, from shere exhaustion, they fell beside the operating tables. They often remained at their posts for fifty to seventy hours.

Miss Sara E. Parsons, superintendent of nurses for many years at the Massachusetts General Hospital and chief nurse of the unit, is reported to have said, in commenting upon the brave and excellent services rendered by the nurses of the unit:

"Braver nurses than these nurses who served under me never lived. They were wonderful—sisters of mercy who knew no fear and whose one thought was of the boys they had gone to save. People in Boston, I am afraid, believe we handled only cases that had come to us, step by step, from other hospitals nearer the front. That is not so. Often, especially during the great drives just before the armistice, cases came to us directly fro mthe front. In July, at one time we had 4,319 cases in the hospital. Each day saw the number increase until every bed was taken.

"Many of our doctors and nurses were detailed at the front. Many of them were at the front for weeks and months at a time with mobile hospital units. There were also nurses of our base hospital detailed to train duty—bringing back wounded from the front. Many of these women were cited by the French and will soon, I understand, be decorated with the Croix de Guerre."

Dr. Frederick R. Washburn, general superintendent of the Massachusetts General Hospital, who sailed as colonel in command of the unit when it left for France in July, 1917, is now in London, and Lieutenant-Colonel Addison G. Brenizer of Charlotte, N. C., who joined it soon after its arrival, was in command on its arrival in New York. The personnel of the Massachusetts Hospital unit which reached New York on the *Abengarez* is in part as follows:

Lieutenant-Colonel Addison G. Brenizer, Major Roger Kinnicutt, Major Robert F. Leinbach, Major James H. Means, Major Albert S. Merrill, Lieutenant-Colonel William L. Moss, Major Everard L. Oliver, Major Richard F. O'Neil, Captain Beth Vincent, Captain Ralph A. Hatch, Captain William M. Hunter, Captain Frederick C. Irving, Captain Henry C. Mabie, Captain Raymond M. Spivy, and Captain Harold G. Tobey, and Sara E. Parsons, chief nurse.

The Boston City Hospital Unit, Base Hospital No. 7, is due to arrive at New York on the *Lorraine* on March 30. The unit was organized by Dr. J. J. Dowling, former superintendent of the City Hospital, and sailed for France in July. The hospital base was at Jou, on the outskirts of Tours, some distance back of the lines. It had 2,700 beds and handled about 8,000 cases. The original personnel included 35 officers, 100 nurses, and 200 men. About twenty of the nurses have volunteered for service with the Army of Occupation in Germany. Among the officers of the unit may be named: Colonel Allen M. Smith, Majors George H. Lathrope, Ellsworth Eliot, John T. Thomas David D. Scannel, and Lieutenant-Colonel E.

H. Nichols, who was with the unit at the close of the war and recently returned to Boston. Captain R. J. Kissock was the only officer to return with the unit.

## MENTAL HYGIENE.

THE significance of mental disease as a health problem is becoming increasingly recognized by health authorities. In order to formulate a program of practicable control and preventive measures the United States Public Health Service needs the assistance of other Government agencies. A program has been outlined and will be carried out as rapidly as funds become available for such purpose. This program considers the most effective means by which the several Government agencies can cooperate in studies and investigations of mental hygiene, the problems of better care and treatment of the insane, mental defective, and epileptic, and measures for the prevention of mental disorders. In the Public Health Report for February 14, 1919, the suggested activities are outlined.

The Department of Labor could render valuable service in assisting in the establishment of a school for the training of medical officers as mental hygienists, in providing facilities for training nurses and assistants for duty in mental hygiene work, and in investigating the care and treatment of insane aliens confined under immigration laws in public and private institutions at Government expense. Government coöperation would assist in the mental examination of coastwise pilots, locomotive engineers, and train dispatchers as a safeguard to the traveling public, and of civil employees in order to determine their fitness for different occupations. The Department of the Interior could coöperate in the study and prevention of insanity and mental deficiency among Indians, Esquimaux, and other primitive rases. In the revision of educational methods from the standpoint of mental hygiene and in devising practical plans for the establishment of special classes for the training of feeble-minded and delinquent children, the assistance of the Bureau of Education is needed. Federal and State departments of justice could secure the adoption of a model law providing for the early treatment of mental disorders, the enactment of a model commitment law, and the establishment of psychiatric pavilions in general hospitals and in connection with the courts.

In matters of prevention, the Public Health Service considers it desirable and practicable that State and local agencies should coöperate in securing the adoption of a law making certain types of mental disorders reportable to the health authorities; in revising and publishing State laws of commitment of the insane and feeble-minded; in determining the prevalence of the insane, feeble-minded, alcoholics, and epilepties; in investigating the prevalence and the care and treatment of these classes of people in institutions in Alaska and in the insular possessions; in compiling a national reference index of the literature on mental hygiene; and in investigating mental status in relation to certain constitutional diseases and drug addiction. Coöperation with the industrial hygiene unit of the United States Public Health Service would make it possible to investigate the mental status of workmen as related to output, fitness, protection from health and injury hazards, and permanence of employment. In investigating the insanity of children and the personality of the potentially insane, the assistance of the child hygiene unit of the service is valuable. Of particular importance is the coöperation with the Division of Venereal Diseases in studies and investigations of the mental status of prostitutes and of the relation of venereal diseases to mental disorders.

This program of the United States Public Health Service should be of interest to the profession and should help in the solution of many problems connected with mental hygiene.

## THE KALLIKAKS OF KANSAS.

In endeavoring to lower the infant mortality rate, the Division of Child Hygiene in Kansas was confronted with the large number of children born to feeble-minded, insane, and degenerate parents. Among this class of people, the birth and death rate of infants was found to be several times as high as among persons of normal development. The offspring of this group complicate the problems of the juvenile courts, child-placing agencies, and children's institutions, and later become inmates of almshouses, jails, reformatories, and prisons. The

cost to the State of caring for this class of people and protecting society from its delinquents is enormous. In order to investigate these conditions, a Commission on Provision for the Feeble-minded was appointed in 1918 by the Governor of Kansas. The work was carried on by volunteers for one year, and a report of their activities has been published in a pamphlet entitled, "The Kallikaks of Kansas." This name was chosen in recognition of the family history of Martin Kallikak, a soldier of the American Revolution, who was father to an illegitimate child born to a feeble-minded girl. The descendants of this feeble-minded girl, traced to the sixth generation, number nearly five hundred paupers, prostitutes, criminals, and degenerates, who have cost their State one and one-half million dollars—and the end is not yet.

This report defines feeble-minded persons, idiots, imbeciles, morons, and the border-line feeble-minded and describes their relative characteristics. Statistics show that at least three in every thousand in the population of the United States are feeble-minded, giving a conservative estimate of 280,000, 70,000 of whom are women of child-bearing age. It is probable that less than 30,000 can be cared for in our institutions. In Kansas it was discovered that there are 7,500 feeble-minded in that State, and less than one in ten is cared for at Winfield. Based on the lowest possible figures, there are 1,500 feeble-minded children in the public schools of Kansas, where they are not receiving the training which will enable them to become self-supporting. The Commission is convinced that the only way permanently to stop the increase of the feeble-minded is to transfer the children into the custodial care of the State before thay reach the age of adolescence, and that the only way immediately to stop the abnormally high birth rate among the feeble-minded is to transfer feeble-minded men and women into colonies especially provided for their care. This pamphlet contains an article dealing with the feeble-minded as a menace, and presents methods of making intelligence tests and of diagnosing higher grades of feeblemindedness and border-line defectives. The mental defectives in Kansas almshouses are described, and their position in court is discussed. The benefits which may be derived from special classes for backward, intractible, and defective children in public schools are enumerated. Colony care for the feeble-minded has many advantages, and the essential requirements for such colonies are here outlined. The Menantico Colony of New Jersey is an example of the results which may be obtained by this treatment. This report includes the life histories of several typical feeble-minded persons and publishes, also, the Kansas legislation for the feeble-minded.

## MEDICAL NOTES.

GIFT TO JOHNS HOPKINS HOSPITAL.—A gift of approximately $400,000 has been given anonymously for the erection of a building at the Johns Hopkins Hospital to serve as a woman's clinic.

APPOINTMENT OF DR. WITHROW MORSE.—Dr. Withrow Morse has received an appointment as professor of physiological chemistry in the medical school of the University of West Virginia, Morgantown.

APPOINTMENT OF DR. EUGENE PORTER.—Dr. Eugene L. Porter has been appointed assistant professor of physiology at the Western Reserve University Medical School. He has been instructor in physiology at the Medical School of the University of Pennsylvania.

ANATOMY DEPARTMENT OF THE UNIVERSITY OF PITTSBURGH.—The Department of Anatomy at the University of Pittsburgh has been reorganized, because of the death of Professor R. E. Sheldon and the resignation of several members of the staff. The present members of the instructing staff are Professor Robert Retzer, Associate Professor C. C. Macklin, and Assistant Professor Harley N. Gould.

GERMAN CASUALTY LISTS.—In the 1,200 casualty lists published by the German army and navy are included the names of 1,158 physicians reported slightly wounded, 332 severely wounded, 663 killed, 422 dead from disease, 212 taken prisoner, 72 missing, and 1 killed by gas.

REDUCTION IN DRUG PRICES.—It has been reported from New York that drug prices, which have been elevated during the war, have been reduced. Within the last few days, it has been

announced by manufacturers of salicylates that a reduction of ten cents a pound has been made by the leading makers in order to stimulate buying.

The demand for acetphenetidin is apparently unsatisfied and today prices are merely nominal on the basis of $2.40 a pound. Olive oil is available at $4.00@$5.00 a gallon for the yellow and green Malaga, with denatured quoted at $3.25.

In regard to menthol, cablegrams from London quoted from 21s. 3d. to 21s. 9d., which is equal to $5.50@$5.70 a pound duty paid. The few holders of spot stocks here are firm in their views, quoting $6 generally.

Reports were current in the drug market that Canada was beginning to place orders in this market for opiates, ipecac roots, and other drugs which now are urgently needed for combating the epidemic of influenza which has again broken out. This marks a new departure, since Canadian demands for opiates have hitherto been generally supplied by Great Britain.

DEATHS FROM INFLUENZA IN LONDON.—A report from London dated February 26 indicates that deaths from influenza are increasing. The total number of deaths from this cause in 96 large towns of England and Wales was 3046, as compared with 1363 in the previous week.

In Greater London the number of deaths was 974, as compared with 451 the previous week.

INFLUENZA IN BARCELONA, SPAIN.—A recent report from Barcelona, Spain, states that influenza is again occurring in epidemic form, although the present outbreak is not so virulent as the epidemic last fall.

CIRCUMSTANCES OF THE DEATH OF MAJOR HARRISON BRIGGS WEBSTER.—The circumstances of the death of Major Harrison Briggs Webster, whose obituary was published in a previous issue of the JOURNAL, have recently been made known. Major Webster, met his death at Bois de Sept Sarges, north of Verdun, while carrying a wounded doughboy away from the firing line. The story of the major's death has just been conveyed to his father by Lieutenant William M. Fay.

At the time of his death, the fighting was being carried on in the open, and the Forty-seventh Infantry was under a heavy bombardment. While assisting the wounded man from the place where he had fallen, Major Webster was hit by a piece of a high-explosive shell and killed instantly.

APPOINTMENT OF DR. LIVINGSTON FARRAND.—Dr. Livingston Farrand has been appointed chairman of the Central Council of the American Red Cross and will direct and manage that organization. Dr. Farrand was the first executive secretary of the National Tuberculosis Association, an office which he held for ten years. For the past two years he has been directing the American Commission on the Prevention of Tuberculosis in France. After March first, when the War Council of the Red Cross goes out of existence, Dr. Farrand will be in supreme command.

RETIREMENT OF DR. SAMUEL W. LAMBERT.—Dr. Samuel W. Lambert, for fifteen years head of the medical faculty at Columbia University and dean of the College of Physicians and Surgeons, is to retire on June 30.

RETURN OF BELLEVUE UNIT.—The Bellevue Hospital unit, attached to Base Hospital No. 1, at Vichy, near Paris, has been relieved and taken over by an evacuation hospital personnel. The unit is composed of twenty-six physicians, sixty-five nurses, and two hundred enlisted men from New York. It sailed for France on February 18, 1918, and has since cared for a large number of the American wounded men. Base Hospital No. 1 was one of the largest near Paris. It was prepared for five hundred patients, but at one time cared for as many as 3,200 cases.

THE ROALDES PRIZE.—The Roaldes Prize of the American Laryngological Association, amounting to the sum of $200, is offered this year in general competition for the best thesis upon some subject directly connected with laryngology or rhinology. Papers, typewritten, must be in the hands of the secretary of the Association prior to June first, 1919 addressed to D. Bryson Delavan, M.D., 40 East 41st street, New York, N. Y.

RESEARCH WORK ON INFLUENZA.—It has been recently reported that Rear Admiral W. C. Braisted, surgeon-general of the Navy, has predicted that there will be a recurrence of the influenza epidemic in 1920. In view of this

belief, he has urged that an appropriation be made by Congress for research work to determine the cause of the disease and its cure. An appropriation of $300,000 for the study of the disease is carried in the sundry civil appropriation bill now before the House, but Admiral Braisted believes that this would not be sufficient to undertake the research work on the necessarily large scale. He has recommended a special appropriation, to be divided between the Public Health Service, the Surgeon-General of the Army, and the Surgeon-General of the Navy.

EDUCATION IN SOCIAL HYGIENE.—At a recent meeting of Senators and Representatives, members of the judiciary, and public officials from throughout the State, Health Commissioner Eugene R. Kelley described the activity of his department against social diseases. The war department film play, "Fit to Fight," was presented.

Major Wilbur A. Sawyer, acting director of the section of social hygiene of the Federal health service, who came from Washington to address the meeting, is reported to have said that he believed that the social diseases problem would be solved only by a concerted campaign of health education aimed equally at men and women and all classes of society.

Dr. G. M. Kline of the State Health Department reported that nine of every hundred patients cared for by public institutions suffer from mental diseases due to syphilis, and that 386 persons became state charges last year because of this disease.

LATENT SEPTICAEMIA.—The *British Medical Journal* has published recently the views of MM. de Gauléjac and Nathan on a form of septicaemia associated with injury of the cancellous bone. They presumably have in mind gunshot wounds, but they exclude cases in which the soft parts are involved, or at any rate so infected as to be the occasion for septicaemia of the usual type.

In the form under consideration there is but one symptom, a frequent pulse. The temperature is approximately normal and level; there is neither pain nor discomfort, nor loss of function until the lesion has been in existence for at least ten days, and until the pathological process approaches the compact tissue or the joint cavity. The authors hold that the bacteriaemia they have found in almost all their cases is definitely associated with the cancellous lesion because complete removal of all damaged tissue is the only sure and certain method of banishing the organisms (*Streptococcus intestinalis* or *pneumobacillus* of Friedländer) from the blood stream. If the bacteriaemia be allowed to persist, progressive anaemia and emaciation appear in company with a chronic ankylosing type of osteo-arthritis. The authors also refer to an apyretic latent type in civil practice, often due, they say, to *Micrococcus tetragenus*, which results in a violent outburst akin to or identical with the ordinary acute osteomyelitis. At first sight it appears as if the authors were taking too narrow a view, from a particular aspect of well-known phenomena. Given a bacteriaemia, and the frequency of transient invasion of the blood stream by small numbers of organisms can hardly be doubted, it is common knowledge that the cancellous tissue is a favorite settling ground for many organisms; that in this situation they may remain latent for long periods; and that the conditions favorable for their pullulation may be occasioned by slight local trauma. Even the symptomless period is not unfamiliar, but it is certainly worth noting that in this period blood cultures may be positive, and that a frequent pulse is alone enough to call for a bacteriological test. There is a considerable number of gunshot cases in which the amelioration of the patient's general condition lags decidedly behind the apparent satisfactory healing of the wounds. Often enough the bone marrow is the only tissue left to suspect; it may only need a positive blood culture to give the surgeon courage enough to explore the interior of a bone he would willingly leave alone, but may thereby abandon to chronic joint or other troubles that operation would prevent.

## BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending March 1, 1919, the number of deaths reported was 279 against 345 last year, with a rate of 18.27, against 22.94 last year. There were 41 deaths under one year of age, against 58 last year.

The number of cases of principal reportable diseases were: diphtheria, 52; scarlet fever, 35; measles, 13; whooping cough, 8; typhoid fever, 3; tuberculosis, 48.

Included in the above were the following cases of non-residents: diphtheria, 3; scarlet fever, 6; tuberculosis, 5.

Total deaths from these diseases were: Diphtheria, 2; tuberculosis, 19.

Included in the above were the following non-residents: Tuberculosis, 2.

Influenza cases, 195. Deaths, 33, of which 4 were non-residents.

Proposed Legislation for Eight-Hour Day for Nurses.—An eight-hour day for all nurses and hospital attendants has been proposed to the Committee on Labor by John C. Gordon of Brookline. It is reported that prominent physicians and registered nurses of the State have opposed the bill. Mr. Gordon believes that both patients and hospital attendants would benefit by legislation that would restrict the number of working hours, for nurses often work sixteen or eighteen hours a day. Dr. Laura A. C. Hughes, Miss Helen Wood, Dr. James B. Howland, Dr. M. H. Bailey, Dr. Herbert B. Howard, and Miss Ester Dart were among those who opposed the bill.

Commendation of Naval Volunteers.—An order of commendation was issued by Secretary Daniels on March 4 for a group of fifty enlisted men of the Navy who, during the recent influenza epidemic, voluntarily submitted to experiments at the Naval Hospital at Chelsea, Massachusetts, to aid naval doctors in the attempt to determine the cause and method of transmission of the disease and methods of prevention.

Boston Medical Library.—The recently issued Annual Report of the Boston Medical Library, the forty-third, states that on December 31, 1918, there were 98,097 volumes cataloged and on the shelves, with several thousand others on hand but not yet cataloged. A number of current German periodicals have arrived, after an interval of nearly three years. But few foreign books have been received. There were naturally fewer readers than usual on account of the absence of many members in camps and in France. Dr. George B. Shattuck, president since 1906, declined a reëlection, and Dr. George H. Monks was chosen in his stead. Dr. R. G. Wadsworth was elected to fill the place of Dr. Elisha Flagg, resigned, treasurer since 1910.

New England Sanatorium.—A ten-day campaign has been started in New England to raise $500,000 for the development and maintenance of a Central New England Sanatorium at Rutland for the accommodation of those patients who cannot afford other institutions. It has been announced that $300,000 has been received in advance. Boston's quota is $300,000, which will be raised by popular subscription. At a recent meeting in Boston, the need of such a sanatorium for people between the very rich and the very poor classes was emphasized. The fact that many discharged and disabled soldiers are tubercular was mentioned as one of the reasons for establishing this institution.

Among the speakers who explained the purpose and necessity of the proposed sanatorium were Dr. Charles W. Eliot, president emeritus of Harvard University; Dr. William T. Sedgwick of the Massachusetts Institute of Technology, Dr. Vincent Y. Bowditch, and Dr. Bayard T. Crane.

Address of Dr. David L. Edsall.—Dr. David L. Edsall, in a recent address for the benefit of the health campaign for raising $270,000 for the Boston Dispensary, the Baby Hygiene Association, and the District Nursing Association, commented upon the illness and mortality among the poorer classes of people. He is reported to have stated that more than five-sixths of the mortality in the poor districts is entirely preventable and that it is through the work of these organizations that conditions among the poor may be ameliorated. In speaking of Germany, Dr. Edsall mentioned her debt to the world for the destruction of man power.

Care of Feeble-Minded Criminals.—The care of feeble-minded criminals is presenting a problem for consideration in Massachusetts. At a recent hearing before the Committee on Legal Affairs, it is reported that Dr. Lowell Wentworth, assistant director of the State Commission on Mental Diseases, and Dr. Walter E. Fernald, superintendent of the Massachusetts School for Feeble-Minded, recommended that one of the penal institutions of the State should be taken over for the housing of this class of criminal defectives. Both of these doctors appeared before the committee to oppose a bill which would give the Superior Criminal Court of the State power to commit men to institutions for feeble-minded. They consider that the schools for feeble-minded have not proper facilities for keeping criminals in custody and that this class of inmate sets an

extremely bad example for the feeble-minded boys of the institutions. A recent examination by Dr. Fernald has shown that one of every four inmates of Charlestown jail are feeble-minded, 60 per cent. of the women in Sherborn Reformatory are feeble-minded, and 22 per cent. of those in Concord Reformatory are in a similar condition.

INFLUENZA IN BOSTON AND MASSACHUSETTS.—On February 25, 23 new cases of influenza, with 1 death, and 5 cases of pneumonia, with 3 deaths, were reported to the Boston Health Department. There were 39 cases of influenza, with 5 deaths, and 12 of pneumonia, with 8 deaths, on February 26. On February 27, 31 cases of influenza, and 6 of pneumonia, with 5 deaths from influenza and 3 from pneumonia were reported.

On February 28, 10 deaths from influenza and 8 from pneumonia, and 32 cases of influenza and 10 of pneumonia were reported to the City Health Department. The figures reported on March 1 showed a decrease, with 25 cases of influenza, with 2 deaths, and 8 cases of pneumonia with 3 deaths.

On March 2, 21 new cases of influenza, with 5 deaths and 3 cases of pneumonia, with 5 deaths, were reported. On March 3, there were only 16 influenza cases and 3 lobar pneumonia, with 6 deaths from each cause. Forty new influenza cases and four of lobar pneumonia were reported to the Health Department on March 4. Department officials attribute the increase to dilatory reporting of cases by physicians. The mortality rate due to both diseases still remains low, with 5 deaths from influenza and 4 of pneumonia.

## The Massachusetts Medical Society.

THE next annual meeting of the Massachusetts Medical Society will be held at the Copley Plaza Hotel, Boston, June 3 and 4, 1919.

The following officers of the sections were elected by the sections for the year 1919:

Section of Medicine: *Chairman*, George A. Bancroft, Natick; *Secretary*, William David Smith, Boston.

Section of Surgery: *Chairman*, Howard A. Lothrop, Boston; *Secretary*, Hilbert F. Day, Boston.

Section of Tuberculosis: *Chairman*, Henry D. Chadwick, Westfield; *Secretary*, E. O. Otis, Boston.

Section of Hospital Administration: *Chairman*, George G. Sears, Boston; *Secretary*, Channing C. Simmons, Boston.

*Chairman of Committee of Arrangements*, J. L. Huntington, 311 Marlborough street, Boston.

*Chairman of Committee on Scientific Papers for Meeting of Society June 4*, F. T. Lord, 305 Beacon street, Boston.

### LETTER OF RESIGNATION.

Treasury Department,
Bureau of The Public Health Service,
Washington, Feb. 21, 1919.

Massachusetts Medical Society,
*Gentlemen:*—

I have the honor to submit herewith my resignation in the Massachusetts Medical Society, to take effect December 31, 1919, and take this opportunity to express my deep appreciation of the cordial support and great assistance rendered by The Massachusetts Medical Society to me as Commissioner of Health of Massachusetts. I believe that the attitude of the Society toward the State Department of Health should be a model for other State medical societies. I hold that the members of The Massachusetts Medical Society, under the splendid leadership which they always have, adopted the policy that they were all health officers, without pay, and as such it was their duty to support loyally the properly constituted health authorities. To this attitude was due in large part such success as I had in Massachusetts, and it is a matter of regret that this broad policy in regard to preventive medicine does not exist in other State medical societies.

Very sincerely yours,
A. J. MCLAUGHLIN,
*Assistant Surgeon-General.*

Formerly Commissioner of Health,
Commonwealth of Massachusetts.

## Miscellany.

### SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at the Roxbury Masonic Temple, 171 Warren Street, March 25, at 8.15 P.M.

Communication: City's Defences against Communicable Diseases
William C. Woodward, Health Commissioner of Boston.

The Censors meet for the examination of candidates, 4 P.M., Thursday, May 1, 1919.

Annual meeting, May 13, 1919.

BRADFORD KENT, M.D., *Secretary.*

NEW ENGLAND PEDIATRIC SOCIETY.—The fifty-eighth meeting of the New England Pediatric Society will be held at the Boston Dispensary, on Monday, March 31, 1919, at 8.15 P.M.

Clinical cases will be presented by members of the staff.

Dr. Maynard Ladd will speak briefly of his experiences in France.

WILLIAM E. LADD, M.D., *President.*
RICHARD H. SMITH, M.D., *Secretary.*